

Chapter 5

Biological Resources

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This chapter analyzes the proposed action's anticipated effects on biological resources. It focuses on the potential for activities enabled by the proposed action to affect special-status species, including but not limited to those specifically covered in the proposed HCP. PG&E's O&M and minor construction activities would also have some potential to affect common species and habitats, but because the common species and habitats most affected are abundant and widely distributed in the San Joaquin Valley, these impacts are not expected to be significant. Impacts on common species and habitats, including agricultural and developed/disturbed lands, are thus discussed in detail only as they have the potential for direct impacts on ecosystem health and indirect impacts on special-status species.

Key sources of information used in the preparation of this chapter include the following.

- The proposed HCP (Appendix B of this EIS/EIR).
- The California Natural Diversity Database (California Department of Fish and Game 2004).
- *Recovery Plan for Upland Species of the San Joaquin Valley, California* (U.S. Fish and Wildlife Service 1998).
- *Amphibian and Reptile Species of Special Concern in California* (Jennings and Hayes 1994).
- *Mammalian Species of Special Concern in California* (Williams 1986).
- *Wildlife and Rare Plant Ecology of Eastern Merced County's Vernal Pool Grasslands* (Vollmar 2002).

Affected Environment

Regulatory Framework

Federal Regulations

The following sections describe the federal Endangered Species Act, Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act, which are the principal federal laws relevant to biological resources in the action area. The federal Clean Water Act, which regulates effects on wetlands, is discussed in Chapter 8 (*Water Resources*).

Endangered Species Act

The federal Endangered Species Act (ESA) of 1973 (16 USC Sec. 1531 *et seq.*) protects fish and wildlife species that are listed as threatened or endangered, and their habitats. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction in all or a significant portion of their range. *Threatened* refers to species, subspecies, or distinct population segments that are considered likely to become endangered in the future. The ESA is administered by the U.S. Fish and Wildlife Service (USFWS) for terrestrial and freshwater species and by the National Oceanographic and Atmospheric Administration's National Marine Fisheries Service (NMFS) for marine species and anadromous fishes.

The ESA prohibits "take" of any fish or wildlife species listed by the federal government as endangered or threatened. (*Take* is defined as harassment, harm, pursuit, hunting, shooting, wounding, killing, trapping, capture, or collection, or the attempt to engage in any such conduct.) The ESA also prohibits removing, digging up, cutting, or maliciously damaging or destroying federally listed plants on sites under federal jurisdiction. However, Section 10[a][1][B] of the ESA establishes a process through which a "nonfederal entity" (a business or individual) can apply for a permit allowing take of federally listed species under certain, restricted circumstances. To be permissible under Section 10[a][1][B], take must occur as a corollary of otherwise lawful activities, and may not be the purpose of the activities; this is referred to as *incidental take*. Permits authorizing incidental take are issued by the USFWS and/or NMFS, depending on the species involved. A key requirement for issuance of a permit under Section 10[a][1][B] is preparation of an HCP that fully analyzes the effects of the proposed take and describes the measures that will be taken to avoid, minimize, and compensate for it.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) (16 USC Sec. 703–712 *et seq.*) enacted the provisions of treaties between the United States, Great Britain,

Mexico, Japan, and the Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate take of migratory birds. The MBTA is administered by USFWS. It establishes seasons and bag limits for hunted species, and renders taking, possession, import, export, transport, sale, purchase, and barter of migratory birds, their occupied nests, and their eggs illegal except where authorized under the terms of a valid federal permit. Activities for which permits may be issued include: scientific collecting; falconry and raptor propagation; “special purposes,” which include rehabilitation, education, migratory game bird propagation, and miscellaneous other activities; control of depredating birds; taxidermy; and waterfowl sale and disposal.

More than 800 species of birds are protected under the MBTA. Specific definitions of *migratory bird* are discussed in each of the international treaties; in general, however, species protected under the MBTA are those that migrate to complete different stages of their life history or to take advantage of different habitat opportunities during different seasons. Examples of migratory bird species include the yellow warbler (*Dendroica petechia*), barn swallow (*Hirundo rustica*), and Canada goose (*Branta canadensis*).

Bald and Golden Eagle Protection Act

The federal Bald and Golden Eagle Protection Act (16 USC Sec. 668 *et seq.*) makes it unlawful to import, export, take, sell, purchase, or barter any bald eagle or golden eagle, or their parts, products, nests, or eggs. *Take* includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbance. Exceptions may be granted by the USFWS for scientific or exhibition use, or for traditional and cultural use by Native Americans. However, no permits may be issued for import, export, or commercial activities involving eagles.

State Regulations

In addition to CEQA, the principal state laws regulating biological resources are the California Endangered Species Act (CESA), the California Native Plant Protection Act (CNPPA), and the California Fish and Game Code.

California Endangered Species Act

CESA protects wildlife and plants listed as *threatened* and *endangered* by the California Fish and Game Commission, as well as species identified as candidates for such listing. It is administered by DFG. CESA requires state agencies to conserve threatened and endangered species (Sec. 2055) and thus restricts all persons from taking listed species except under certain circumstances. CESA defines *take* as any action or attempt to “hunt, pursue, catch, capture, or kill.” Under certain circumstances, DFG may authorize limited take, except for species designated as *fully protected* (see discussion of fully

protected species under *California Fish and Game Code* below). The requirements for an application for an incidental take permit under CESA are described in Section 2081 of the California Fish and Game Code and in final adopted regulations for implementing Sections 2080 and 2081.

California Native Plant Protection Act

The CNPPA of 1977 was enacted to preserve, protect, and enhance endangered and rare plants in California. It specifically prohibits the importation, take, possession, or sale of any native plant designated by the California Fish and Game Commission as rare or endangered, except under specific circumstances identified in the Act. Various activities are exempt from CNPPA, although take as a result of these activities may require other authorization from DFG under the California Fish and Game Code.

California Fish and Game Code

The California Fish and Game Code provides protection from take for a variety of species, separate from and in addition to the protection afforded under CESA. The Code defines *take* as “hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill.”

Species identified in the Code as *fully protected* may not be taken except for scientific research. Fully protected species are listed in various sections of the Code. For instance, fully protected birds in general are protected under Section 3511, nesting birds under Sections 3503.5 and 3513, and eggs and nests of all birds under Section 3503. Birds of prey are addressed under Section 3503.5. All other birds that occur naturally in California and are not resident game birds, migratory game birds, or fully protected birds are considered *non-game birds* and are protected under Section 3800. Section 3515 lists protected fish species and Section 5050 lists protected amphibians and reptiles. Section 4700 identifies fully protected mammals.

The California mountain lion (*Felis [Puma] concolor*) is identified as a *specialty protected species* in Section 4800 of the Code. Under Sections 4800–4809, it is illegal to take, injure, possess, transport, import or sell any mountain lion or any part thereof, except under specific circumstances.

Local Plans and Regulations

Three of the seven “elements” or chapters that the State of California requires local jurisdictions to include in their general plans bear on issues related to biological resources: land use, conservation, and open space.

Of the three, the conservation element is most directly focused on natural resources. Its purpose is to promulgate policies that will help to balance

conflicting demands for natural resources as populations expand. In support of this purpose, some jurisdictions have begun to adopt policies that specifically relate to the requirements of the federal and state Endangered Species Acts and other conservation planning laws. Issues that must be addressed in the conservation element include water, rivers, and harbors; forests; soils; fisheries; wildlife; and minerals. Other topics considered optional but commonly covered include reclamation of lands and waters; water quality and watershed protection; land use in stream channels and other areas important to natural resources conservation; and biological diversity and ecological sustainability needs (Rivasplata and McKenzie 1998).

The purpose of the open space element is to create a blueprint for comprehensive long-range preservation and conservation of open space. Open space lands are used for a variety of purposes; key uses directly relevant to biological resources include *open space for the preservation of natural resources*, such as habitat needed to support plant and animal life, and areas that are important for scientific research in support of conservation. The Governor's Office of Planning and Research (OPR) also identifies a category of *open space used for the managed production of needed resources*; these include forest lands, rangelands, agricultural lands, and waters that support commercial fisheries (Rivasplata and McKenzie 1998).

OPR directs local jurisdictions to consider the preservation of biological resources in the development of their land use policies. Resources specifically identified for consideration in general plan land use elements include the nature and location of "unique water resources" such as marshes, wetlands, and riparian corridors; the distribution, populations, and habitat use of wildlife and fish, including rare and endangered species; and the distribution of rare, threatened, and endangered plants (Office of Planning and Research 2004).

Existing Conditions

The following sections describe existing biological resources in the action area. As discussed in Chapter 1, the action area includes all lands expected to experience direct and indirect effects resulting from activities enabled under the proposed action. Information in these sections was drawn primarily from work performed during the development of the proposed HCP, augmented by information from the published biological literature.

Land Cover Types in the Action Area

Land-cover types (habitat types) in the action area were identified by combining data from several sources:

- the California Department of Conservation's (DOC's) Important Farmland Mapping Program;

- the California Department of Water Resources' (DWR's) urban boundaries mapping;
- DFG's wetland riparian and vernal pool GIS mapping layers;
- the California Department of Forestry and Fire Protection's (CDF's) data on hardwood rangeland forest types; and
- satellite land cover imagery produced by the California GAP Analysis Project at the University of California, Santa Barbara, commonly referred to as the "GAP data" (Davis et al. 1998).

Where the area covered by two or more data sources overlapped, data from the highest quality source were incorporated into the land-cover mapping developed for the proposed HCP. In order to combine data from multiple sources, land cover information was reclassified into a standardized classification based on DFG's Wildlife Habitat Relationships system (WHR), and work by Holland (1986), Sawyer and Keeler-Wolf (1995), and Mayer and Laudenslayer (1988). Additional information on the land cover mapping process is provided in the proposed HCP (included as Appendix B of this EIS/EIR).

The following sections describe the 15 land cover types found in the action area. Plant species nomenclature follows *The Jepson Manual* (Hickman 1993). Percentages of the land cover types were calculated by analyzing the mapped linear miles of gas and electric transmission and distribution facilities that comprise the action area.¹

Natural Vegetation Types

Blue Oak Woodland

Blue oak woodland covers 1.01% of the action area. This land cover type comprises woodland dominated by blue oak (*Quercus douglasii*), with patches of coast live oak (*Quercus agrifolia*), interior live oak (*Quercus wislizenii*), and valley oak (*Quercus lobata*). At higher elevations, foothill pine (*Pinus sabiniana*) is common. Shrub species found within blue oak woodland include poison-oak (*Toxicodendron diversilobum*), California coffeeberry (*Rhamnus californica*), California buckeye (*Aesculus californica*), holly-leaf cherry (*Prunus ilicifolia*) and manzanitas (*Arctostaphylos* spp.). The herb layer is mainly annual grasses and forbs.

Blue Oak/Foothill Pine

Blue oak/foothill pine covers 0.53% of the action area. This land cover type is characterized by a mixed, open canopy dominated by blue oak and foothill pine. Associated tree species include interior live oak, California buckeye, and elderberry (*Sambucus mexicana*), with chaparral species such as manzanitas,

¹ These analyses are presented in full in Chapter 3 of the HCP document (Appendix B of this EIS/EIR).

chamise (*Adenostoma fasciculatum*), and buckbrush (*Ceanothus cuneatus*) in the understory. The herb layer is mainly annual grasses and forbs.

Coastal Oak Woodland

Coastal oak woodland covers 0.02% of the action area. Dominant vegetation in this habitat includes coast live oak, Pacific madrone (*Arbutus menziesii*), interior live oak, foothill pine, and California blackberry (*Rubus ursinus*).

Conifer

The conifer land cover-type makes up 0.26% of the action area. *Conifer* is a general land cover-type that includes the WHR habitat types *Sierran mixed conifer*, *closed-cone pine-cypress*, and *Ponderosa pine*.

- **Sierran mixed conifer forest** has a multi-layered canopy that includes five conifers: white fir (*Abies concolor*), Douglas-fir (*Pseudotsuga menziesii*), Ponderosa pine (*Pinus ponderosa*), sugar pine (*Pinus lambertiana*), and incense cedar (*Calocedrus decurrens*); and one hardwood, black oak (*Quercus kelloggii*). Shrubs such as deerbrush (*Ceanothus integerrimus*), manzanitas, bitter cherry (*Prunus emarginata*), gooseberries and currants (*Ribes* spp.), and mountain misery (*Chamaebatia foliolosa*) occur in openings.
- **Closed-cone pine-cypress** generally occurs on low-nutrient or serpentine substrates. Typical species in the action area are Gowan cypress (*Cupressus goveniana*) and knobcone pine (*Pinus attenuata*). The shrub layer is generally well-developed and includes manzanitas, ceanothus, shrubby oaks, buckthorn (*Rhamnus* sp.), and poison-oak.
- **Ponderosa pine woodland** varies from pure stands of Ponderosa pine (*Pinus ponderosa*) to mixed stands with oaks, Pacific madrone (*Arbutus menziesii*) and other conifers. Associated shrubs include manzanitas, mountain misery, ceanothus, yerba santa (*Eriodictyon californicum*), bitter cherry, poison-oak, and Sierra gooseberry (*Ribes roezlii*).

Grassland

Grassland consisting of herbaceous vegetation dominated by grasses and forbs covers 19.71% of the action area. The grassland land-cover type includes a variety of habitats: *annual grassland*, *perennial grassland*, *valley sacaton grassland*, *alkali meadow*, and *vernal pool*.

- **Annual grasslands** are dominated by introduced annuals, including wild oats (*Avena* spp.), brome grasses (*Bromus* spp.), barleys (*Hordeum* spp.), and annual fescues (*Vulpia* spp.). Common herbs include introduced annuals such as filarees (*Erodium* spp.) and clovers (*Trifolium* spp.), and native species such as fiddleneck (*Amsinckia* spp.), lupines (*Lupinus* spp.), and owl's-clover (*Castilleja* spp.). These species germinate after the late fall and winter rains and grow, flower, and set seed through spring. Most die in the summer season.
- **Perennial grasslands** are dominated by native grasses such as California oatgrass (*Danthonia californica*), sweet vernal grass (*Anthoxanthum*

odoratum), brome grasses, and fescues (*Festuca* spp.). The associated herb cover includes native and non-native forbs and native wildflowers.

- **Valley sacaton grassland** occurs in the San Joaquin Valley, especially on the fine-textured, usually alkaline soils of the Tulare Lake Basin area, where it used to be extensive. The dominant species is alkali sacaton (*Sporobolus airoides*), a tussock-forming native perennial grass. Saltgrass (*Distichlis spicata*) and low barley (*Hordeum depressum*) are common.
- **Alkali meadow** occurs on fine-textured alkaline soils that are usually permanently moist, and is characterized by open to dense perennial grasses and sedges. Typical plants include yerba mansa (*Anemopsis californica*), sedges (*Carex* spp.), saltgrass, rushes (*Juncus* spp.), alkali mallow (*Malvella leprosa*), alkali cordgrass (*Spartina gracilis*), and alkali sacaton.
- **Vernal pools** include northern claypan and northern hardpan vernal pools. Both communities are dominated by native annual species that germinate, grow, and flower as the pools dry up in the spring. Characteristic plants include goldfields (*Lasthenia* spp.), downingia (*Downingia* spp.), meadowfoam (*Limnanthes alba*), navarettia (*Navarretia* spp.), and popcornflower (*Plagiobothrys* spp.).

Montane Hardwood

Montane hardwood covers 0.56% of the action area. This land cover type includes the WHR habitats *montane hardwood*, *montane hardwood conifer*, and *montane riparian*.

- **Montane hardwood** has a clear hardwood layer with a sparse shrub layer, and may include occasional coniferous trees. The dominant tree in the action area is canyon live oak (*Quercus chrysolepis*), with a small component of foothill pine, knobcone pine, and Pacific madrone. This habitat type borders mixed conifer, montane hardwood-conifer, and mixed chaparral habitat types.
- **Montane hardwood conifer** consists of a diverse mixture of hardwood and conifer trees, comprising at least one-third conifers and one-third broadleaved trees. The tree canopy is typically dense and multi-layered; characteristic trees in the action area include black oak, black cottonwood (*Populus balsamifera*), canyon live oak, ponderosa pine, sugar pine, and incense cedar.
- **Montane riparian** habitat occurs as a narrow band of deciduous broadleaved trees along seeps, streams, and rivers. In the action area, characteristic trees include quaking aspen (*Populus tremuloides*), willows (*Salix* spp.), and white alder (*Alnus rhombifolia*).

Open Water

Open water covers 0.43% of the action area. Open water in the action area includes a variety of natural and artificial aquatic habitats that support submerged or floating vegetation: lakes, reservoirs, flood control basins, ponds (including stock ponds), sloughs, canals, and rivers. Many of the large water bodies support permanent and seasonal wetland and riparian communities along their edges.

Permanent Freshwater Wetland

Permanent freshwater wetland covers 0.07% of the action area. This habitat type includes freshwater emergent wetlands and wet meadows. Dominant vegetation in freshwater wetlands includes cattails (*Typha* spp.), tules and bulrushes (*Scirpus* spp.), sedges, nutsedges (*Cyperus* spp.), arrowhead (*Sagittaria* spp.), Baltic rush (*Juncus balticus*), and common reed (*Phragmites australis*). On sites with more alkaline substrates, saltgrass may be present.

Seasonal Wetland

Seasonal wetlands cover 0.83% of the action area. They are characterized by ponded or saturated soil conditions during the winter and spring. This land cover type includes *seasonal wetland* and *cismontane alkali marsh*.

- **Seasonal wetland** vegetation consists of “wetland generalist” species typical of frequently disturbed sites, such as stream corridors. Common plants include hyssop loosestrife (*Lythrum hyssopifolia*), cocklebur (*Xanthium* spp.), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), and Italian ryegrass (*Lolium multiflorum*).
- **Cismontane alkali marsh** vegetation consists of specialized plants that grow in wet areas with high salt contents. Common plants include yerba mansa, saltgrass, rushes, pickleweed (*Salicornia virginica*), cattails, alkali heath (*Frankenia salina*).

Upland Scrub

Upland scrub covers 0.48% of the action area. Upland shrub habitat includes a wide variety of shrub/scrub cover types; common constituents are alkali desert scrub and three types of chaparral (mixed, chamise-redshank, and montane). Other shrub types are also present in some areas.

- **Alkali desert scrub** is similar to the WHR land cover types “Valley/Coast Range Saltbush Scrub and Valley Sink Scrub”, and includes both xerophytic and halophytic shrub-dominated communities. These habitat types are dominated by shrubs in the chenopod family, especially all-scale (*Atriplex polycarpa*) and other *Atriplex* species. In addition to all-scale, characteristic shrubs include arrowscale (*Atriplex phyllostegia*), goldenbush (*Isocoma acradenia* var. *bracteosa*), bladderpod (*Isomeris arborea*), and alkali heath (*Frankenia salina*).
- **Valley sink scrub** is an open shrub-dominated community on highly alkaline soils, usually heavy, sticky clay. Alkali playas (or “balds”) are common. The groundwater table is usually high, and the soil surface is often covered with a salty crust. Characteristic shrubs include iodine bush (*Allenrolfea occidentalis*) and bush seepweed (*Suaeda moquinii*), and typical forbs are saltgrass, nitrophila (*Nitrophila occidentalis*), pickleweed (*Salicornia subterminalis*), and alkali sacaton.

Three types of chaparral are distinguished in the plan area. All are characterized by dense stands of evergreen shrubs, but species composition varies greatly with elevation, location, aspect, climate, and substrate. Fire is regular in these communities, and influences structure and species composition. Herbaceous

plants include annual and perennial grasses and forbs that occupy small openings in the shrub canopy.

- **Mixed chaparral** is typically dense and diverse. Dominant species include shrubby oaks (*Quercus* spp.), manzanitas, and several species of ceanothus, in mixed or patchy stands. Commonly associated shrubs include chamise, toyon (*Heteromeles arbutifolia*), yerba-santa, mountain-mahogany (*Cercocarpa betuloides*), buckeye, silk-tassel (*Garrya* spp.), fremontia (*Fremontia californicum*), and chaparral-pea (*Pickeringia montana*).
- **Chamise-redshank chaparral** is characterized by a dense monolayer dominated by chamise and redshank (*Adenostoma sparsifolium*). Associated shrubs are similar to those in mixed chaparral.
- **Montane chaparral** is characterized by evergreen shrubs with some admixture of broadleaved species. Typical shrubs include mountain whitethorn (*Ceanothus cordulatus*), manzanitas, bitter cherry, huckleberry oak, mountain-mahogany, and toyon.

Valley Oak Woodland

Valley oak woodland covers 0.38% of the action area. This habitat type is strongly dominated by valley oak, but may also contain blue oak, California sycamore (*Platanus racemosa*), black walnut (*Juglans californica* var. *hindsii*), and box elder (*Acer negundo*). The canopy layer is typically open, forming a savanna structure rather than woodland. Associated understory shrubs include elderberry, poison-oak, toyon, and California blackberry. The herb layer is often dominated by creeping wildrye grass (*Leymus triticoides*), and includes a variety of annual and perennial grasses and forbs.

Woody Riparian

Woody riparian habitat covers 0.09% of the action area. This land cover type includes WHR's valley-foothill riparian and desert riparian habitat types, along with *great valley cottonwood riparian forest* and *great valley mixed riparian forest*. Dominant trees and shrubs include Fremont cottonwood (*Populus fremontii* ssp. *fremontii*), valley oak, sycamore, box elder, willows, blackberries (*Rubus* spp.), buttonbush (*Cephalanthus occidentalis*), and California grape (*Vitis californica*).

Agricultural and Developed Types

Agricultural Lands

Agricultural lands cover 36.18% of the action area. This land cover type includes all areas where the native vegetation has been cleared for agriculture. Common types of agricultural lands in the action area are orchards, vineyards, row crops, irrigated pasture, and fallow fields.

Urban

Approximately 38.79% of the action area consists of urban areas. This land cover type was mapped to include all types of urban development for residential,

commercial, industrial, and recreational uses. Developed areas also include sites that support structures, paved surfaces, horticultural plantings, and lawns.

Other Developed and Disturbed Lands

About 1.41% of the action area falls into the “other disturbed and developed lands” category. This land cover type includes what the WHR classification refers to as *barren* land cover—lands that support perennial weeds dominated by nonnative species, and lands with urban infrastructure.

Special-Status Species

Special-status species include plants and animals that are legally protected under ESA, CESA, or other regulations, as well as species considered sufficiently rare by the scientific community to qualify for such listing. Following are key categories of special-status species.

- **Currently listed** as threatened or endangered under ESA or CESA.
- **Proposed for listing** as threatened or endangered under ESA or CESA.
- **Candidates for possible future listing** as threatened or endangered under ESA or CESA.
- Considered by the California Native Plant Society (CNPS) to be “**rare, threatened or endangered in California**” (CNPS List 1B).
- **Fully protected** under the California Fish and Game Code.

Special-status species also include some species in the following categories.

- California species of special concern (i.e., species included on DFG’s *Special Animals List* 2003).
- Species identified by DFG and the Point Reyes Bird Observatory (PRBO) as being of special concern in California.
- Species known by experts to be very rare, declining rapidly, and/or with important habitat that may be affected.

The proposed HCP covers 65 special-status species (Table 2-6). It includes special-status species meeting all of the following criteria.²

- Currently listed as threatened or endangered under ESA or CESA, fully protected species in California, or species expected to be listed within the next 30 years.
- Known or likely to occur in the action area.

² Additional information on the process by which species were identified for inclusion in the proposed HCP is provided in the HCP document (Appendix B of this EIS/EIR).

- May be adversely affected by O&M or minor construction activities conducted by PG&E.
- Sufficiently well documented that impacts can be adequately evaluated and conservation measures to mitigate impacts to regulatory standards can be developed, *or* important habitat for the species occurs in the plan area even if limited data are available.

Special-Status Plants

Forty-two special-status plant species met the above criteria and were included in the proposed HCP. Table 5-1 contains a summary of legal status, distribution, and habitat for each of these special-status species.

In addition to the species covered in the proposed HCP, another 88 special-status plant species are known to occur or have the potential to occur in the action area. These species are referred to as non-covered special-status species in this EIS/EIR. Non-covered special-status plant species were identified for inclusion in EIS/EIR analyses based on work done during the preparation of the proposed HCP; in addition, because the original screening of special-status species for coverage in the HCP was conducted in 2001, the current (2004) CNDDDB was consulted to determine whether additional species should be analyzed in this EIS/EIR. The resulting list includes all special-status plant species that are known or likely to occur in the action area, and have the potential to be affected by O&M or minor construction activities or HCP implementation, but did not meet the criteria identified above for HCP coverage. Table 5-2 contains a summary of their legal status, distribution, and habitat requirements.

Special-Status Wildlife

Twenty-three special-status wildlife species are included in the proposed HCP. Table 5-3 contains a summary of their legal status, distribution, and habitat requirements.

In addition to the species covered in the proposed HCP, another 31 special-status wildlife species are known to occur or have the potential to occur in the action area. These species are referred to as *noncovered special-status species* in this EIS/EIR. Noncovered special-status wildlife species were identified for inclusion in this EIS/EIR based on work done during the preparation of the proposed HCP; in addition, as described above for special-status plants, the current (2004) CNDDDB was consulted to determine whether additional species should be added to those originally identified through the HCP process. The resulting list includes all special-status wildlife species that are known or likely to occur in the action area and have the potential to be impacted by O&M or minor construction activities or HCP implementation, but did not meet the criteria listed above for HCP coverage. Table 5-4 contains a summary of their legal status, distribution, and habitat requirements.

Table 5-1. Overview of Special-Status Plants Covered by Proposed Habitat Conservation Plan

Species	Status	Description and Habitat	Distribution	Primary Threats
	Fed/State/CNPS			
Large-flowered fiddleneck (<i>Amsinckia grandiflora</i>)	E/E/1B	<p>Erect, coarsely hairy annual herb in the borage family (Boraginaceae). The large, orange-red flowers are borne on stalks curved like the neck of a fiddle and bloom April–May.</p> <p>Grows in cismontane woodland and valley and foothill grassland at elevations of 902–1,001 feet. Found on organic-rich neutral to slightly basic soils with a loamy or clayey structure.</p>	<p>Endemic to California; known from only two native occurrences in Alameda and San Joaquin Counties. Additional populations have been introduced into the species’ former range in Contra Costa and San Joaquin Counties.</p> <p>Within the action area, there are 2 native occurrences and 1 introduced population in San Joaquin County.</p>	<p>Competition from nonnative annual grasses; grazing; possibly also alteration of natural fire frequency.</p>
Lesser saltscale (<i>Atriplex minuscula</i>)	–/–/1B	<p>Ascending to erect annual in the goosefoot family (Chenopodiaceae), grows 15 inches with spreading, brittle reddish, peeling branches. Opposite leaves ovate to cordate in shape; white-scaly below, green above and blooms May–October.</p> <p>Grows in alkali sinks and on alkaline sandy soils in chenopod scrub and valley and foothill grasslands, often on scald margins, at elevations of 49–656 feet.</p>	<p>Endemic to California; most populations found in San Joaquin Valley at elevations less than 656 feet. Of 18 occurrences in Sutter, Stanislaus, Fresno, Kern, Madera, Merced, King, and Tulare Counties, 17 are within the action area.</p>	<p>Habitat loss from agricultural conversion, highway construction, golf course construction, pipeline installation, and flooding (waterfowl management).</p>
Bakersfield smallscale (<i>Atriplex tularensis</i>)	–/E/1B	<p>Erect, few-branched annual in the goosefoot family (Chenopodiaceae), with a scaly surface on the stems, smooth ovate leaves, and small dense clusters of greenish flowers that bloom June–October.</p> <p>Grows in chenopod scrub at elevations of 295–656 feet.</p>	<p>Endemic to Kern County; known from only 3 occurrences. All are within the action area; 2 are known to be extirpated, and the third may also be extirpated. Historically occurred on the borders of alkali sinks and on alkaline plains in the vicinity of Weed Patch, southern Kern County (south of Bakersfield along Highway 99).</p>	<p>Land conversion; lowering of the water table; possibly also hybridization with bracted saltbush (<i>Atriplex serenana</i>).</p>
Big tarplant (<i>Blepharizonia plumosa</i> ssp. <i>plumosa</i>)	–/–/1B	<p>Annual herb in the sunflower family (Asteraceae); grows 12–71 inches high and blooms July–October.</p> <p>Grows on clay to clay loam soils in valley and foothill grasslands at elevations of 98–1,657 feet.</p>	<p>Endemic to California; known from 36 occurrences in Alameda, Contra Costa, San Joaquin, Stanislaus, and Solano Counties. Within the action area, there are 15 native occurrences in San Joaquin County and 1 occurrence in Stanislaus County.</p>	<p>Competition from nonnative plants; fire suppression activities; proposed drainage construction; cattle grazing; erosion; road maintenance.</p>
Mariposa pussypaws (<i>Calyptidium pulchellum</i>)	T/–/1B	<p>Small annual herb in the purslane family (Portulacaceae); blooms April–August.</p> <p>Grows in chaparral and cismontane woodland plant communities with granitic sandy or gravelly soils at elevations of 1,312–4,003 feet.</p>	<p>Known from 7 occurrences distributed over a 750 square-mile area in Fresno, Madera, and Mariposa Counties; probably was never more widely distributed than it is today. Six of the known occurrences are within the action area and are recent and extant.</p>	<p>Loss of habitat to development, grazing, and vehicles.</p>

Species	Status	Description and Habitat	Distribution	Primary Threats
	Fed/State/CNPS			
Tree-anemone (<i>Carpenteria californica</i>)	-/T/1B	Erect to spreading evergreen shrub in the mock orange family (Philadelphaceae); blooms May–July. Grows on well-drained granitic soils; most abundant in north-facing ravines and drainages in chaparral and cismontane woodland communities at elevations of 1,115–4,396 feet.	Endemic to the central and southern Sierra Nevada foothills between the Kings and San Joaquin Rivers in Fresno County. Of 11 occurrences listed in the California Natural Diversity Database, 1 historic occurrence and 5 recent/extant ones are within the action area.	Extant populations threatened by proposed road construction; off-highway vehicle use; logging; hydroelectric operations; residential development; and fire suppression. Populations have been lost due to landfill and road construction activities.
Succulent owl's-clover (<i>Castilleja campestris</i> ssp. <i>succulenta</i>)	T/E/1B	Hemiparasitic annual herb in the figwort family (Scrophulariaceae). Occurs in drying, often acidic, vernal pools with heavy clay soils in valley grassland or woodland habitats at elevations of 164–2,461 feet.	Endemic to lower foothills and valleys in a 66-mile stretch of eastern San Joaquin Valley. Range extends through northern Fresno, western Madera, eastern Merced, southeastern San Joaquin, and Stanislaus Counties. All 63 known occurrences are within the action area; 51 are recent and 12 are historic.	Loss of vernal pool habitat from agricultural conversion; disking of pools; competition from nonnative plants; overgrazing; off-highway vehicle use; inappropriate grazing practices; urbanization.
California jewelflower (<i>Caulanthus californicus</i>)	E/E/1B	Annual herb in the mustard family (Brassicaceae). Grows on sandy soils in pinyon and juniper woodlands, chenopod scrub, and valley and foothill grasslands at elevations of 230–328 feet.	Endemic to California. Historically occurred in Fresno, Kings, Kern, Santa Barbara, San Luis Obispo, Tulare, and Ventura Counties. Today known only from Santa Barbara, San Luis Obispo, and Fresno Counties. Of 58 known occurrences, 24 are within the action area; 4 are extant, 12 may be extirpated, and 8 are known to be extirpated. All 4 extant occurrences are in Kern and Fresno Counties.	Agriculture; urbanization; energy development; grazing; nonnative plants.
Hoover's spurge (<i>Chamaesyce hooveri</i>)	T/-/1B	Small, prostrate annual herb in the spurge family. Has milky sap. Forms mats from a few inches to a few feet across. Restricted to large, deep vernal pools on old alluvial terraces and basin rims with claypan soils at the base of the Sierra Nevada foothills.	Endemic to a 240-mile stretch along the eastern margin of the Central Valley. Historical distribution poorly documented, but species is believed to have been more common in the past. Most extant populations occur in Tulare County north of Visalia; 1 population each occurs in Stanislaus and Merced Counties. Of 30 known occurrences, 8 (7 recent and 1 historic) are within the action area.	Habitat loss and degradation from urbanization; agricultural land conversion; livestock grazing; off-highway vehicle use; flood control construction; highway construction; altered hydrology; landfill projects; competition from weedy nonnative plants.
Slough thistle (<i>Cirsium crassicaule</i>)	-/-/1B	Annual or biennial species of the sunflower family (Asteraceae); grows 3–10 feet tall and blooms May–August. Grows in chenopod scrub, marshes and swamps (sloughs), and riparian scrub at elevations of 10–328 feet.	Endemic to Kern, King, and San Joaquin Counties. Of 19 known occurrences (17 presumed extant and 2 possibly extirpated), 17 are within the action area, 15 in Kern County, 1 extant in San Joaquin County, and 1 possibly extirpated in King County.	Conversion of habitat to agricultural use; nonnative plants; grazing; loss of water sources.

Species	Status	Description and Habitat	Distribution	Primary Threats
	Fed/State/CNPS			
Mariposa clarkia (<i>Clarkia biloba</i> ssp. <i>australis</i>)	-/-/1B	Erect annual herb in the evening primrose family (Onagraceae); blooms May–July. Grows in chaparral and woodlands, or in ecotone between foothill woodland and riparian habitat. Found on soil derived from metamorphic rock, and on other types of loose soil. Generally occurs at elevations of 984–3,100 feet.	Endemic to Mariposa County; may also occur in Tuolumne County. Recorded occurrences are along or near the South Fork Merced River and along State Routes 140 and 49. Of 14 known occurrences, 13 are within the action area; all are presumed extant.	Road maintenance and roadside spraying; power line maintenance; slope failure; mining; public recreation; fire control activities; nonnative plants.
Merced clarkia (<i>Clarkia lingulata</i>)	-/E/1B	Annual herb in the evening primrose family (Onagraceae); produces bright pink flowers in May–June. Grows at elevations of 1,312–1,493 feet, on steep north-facing slopes in chaparral and cismontane woodland plant communities with sandy loam soils derived from phyllite parent material.	Endemic to California. Known only from 2 locations in Mariposa County, both within the action area, and both considered extant.	Road maintenance; herbicide spraying; slumping of slopes; fire; grazing. Also, as of 1998, encroachment by yellow star-thistle (<i>Centaurea solstitialis</i>).
Springville clarkia (<i>Clarkia springvillensis</i>)	T/E/1B	Annual herb in the evening primrose family (Onagraceae); blooms May–July. Grows along roadsides and in grassy openings in blue oak woodland, chaparral, cismontane woodland, and valley and foothill grassland plant communities with granitic soils at elevations of 1,099–4,003 feet.	Endemic to California. Restricted to area near Springville in Tulare County. Of 15 extant populations, 11 are in the action area.	Nonnative plants; overgrazing; vehicles; road maintenance; logging; residential development.
Vasek's clarkia (<i>Clarkia tembloriensis</i> ssp. <i>calientensis</i>)	-/-/1B	Annual herb in the evening primrose family (Onagraceae); blooms in April. Grows on north- and northwest-facing slopes in valley and foothill grassland plant communities at elevations of 902–1,640 feet.	Endemic to California. Known from only 3 locations in Kern County near Caliente Creek, east of Bakersfield; all are within the action area, and all are extant.	Grazing; encroachment by invasive grasses.
Hispid bird's-beak (<i>Cordylanthus mollis</i> ssp. <i>hispidus</i>)	-/-/1B	Hemiparasitic annual herb in the figwort family (Scrophulariaceae); grows 4–16 inches tall and blooms June–September. Occurs in playas, alkaline meadows, and saline marshes and flats.	Historically occurred in central and southern Central Valley, including Alameda, Merced, Placer, Kern, and Solano Counties. Extirpated from most of the San Joaquin Valley; some 25 occurrences remain, of which 23 extant occurrences (22 in Merced County and 1 in Kern County) and 1 believed extirpated are within the action area.	Conversion of habitat to agricultural use; residential development; hydraulic modifications; off-highway vehicle use; erosion; grazing.

Species	Status	Description and Habitat	Distribution	Primary Threats
	Fed/State/CNPS			
Palmate-bracted bird's-beak (<i>Cordylanthus palmatus</i>)	E/E/1B	Annual herb in the figwort family (Scrophulariaceae); blooms May–October. Grows on seasonally flooded saline-alkali soils of lowland plains and basins, in chenopod scrub and valley and foothill grasslands at elevations below 500 feet. Restricted to soils within a narrow range of pH, salinity, and moisture content.	Endemic to California. Historically occurred throughout the San Joaquin Valley (Fresno and Madera Counties), the Livermore Valley (Alameda County), and the Sacramento Valley (Colusa and Yolo Counties). Of 11 occurrences in the action area, 8 are extant, 1 is possibly extirpated, and 2 are known extirpated.	Agriculture; urbanization; vehicles; altered hydrology; grazing; bicycle use; industrial development.
Kern mallow (<i>Eremalche kernensis</i>)	E/–/1B	Small annual herb in the mallow family (Malvaceae). Grows on alkaline sandy loam or clay soils in chenopod scrub and valley and foothill grassland at elevations of 230–3,281 feet. Occupies areas where shrub cover is less than 25%.	Endemic to California. Known distribution is restricted to a single metapopulation comprising 15 occurrences in an area of about 40 square miles at the eastern base of the Temblor Range, near McKittrick and Buttonwillow (western Kern County). All known occurrences are within the action area; 13 are extant, 2 are extirpated.	Agriculture; sheep grazing; activities along transmission line corridor; oil and gas development.
Congdon's woolly sunflower (<i>Eriophyllum congdonii</i>)	–/Rare/1B	Yellow-flowered annual herb in the sunflower family (Asteraceae); blooms May–June. Occurs in chaparral, cismontane woodland, and lower montane conifer forest on dry ridges of metamorphic rock, scree, and talus at elevations of 1,640–6,234 feet.	Endemic to California; restricted to Merced River Canyon, Mariposa County. Of 14 known occurrences, 5 are in the action area; 2 are recent, 3 are historic, and all are presumed extant.	Competition from weedy nonnative plants; trail restoration; mining; timber harvesting; road maintenance.
Delta button-celery (<i>Eryngium racemosum</i>)	–/E/1B	Annual/perennial herb in the carrot family (Apiaceae); blooms June–August. Occupies vernal mesic clay depressions in riparian scrub, or subalkaline swales, at elevations of 10–98 feet. Periodic flooding maintains the species' habitat through sustenance of seasonal wetlands; scouring reduces competition from other species.	Endemic to California. Historically occurred in Calaveras, Merced, Stanislaus, and San Joaquin Counties. Of 26 known occurrences, 6 may be extirpated, including all the occurrences in San Joaquin County and most in Stanislaus County. Most extant occurrences are found in Merced County along the San Joaquin River. Some 25 occurrences are within the action area (19 extant and 6 possibly extirpated); of the remaining extant occurrences, 17 are in Merced County, 1 in Stanislaus County, and 1 along the Merced-Stanislaus County boundary.	Flood control activities and related alterations in hydraulics/hydrology; conversion of lowlands to agricultural uses. Riparian restoration or waterfowl enhancement projects could threaten the species if habitat areas are artificially flooded during some life cycle stages.
Striped adobe lily (<i>Fritillaria striata</i>)	–/T/1B	Perennial herb in the lily family (Liliaceae); blooms February–April. Grows on clay soils in cismontane woodland and valley and foothill grassland plant communities at elevations of 443–4,774 feet.	Endemic to California. Known distribution is in the southern Sierra Nevada foothills of eastern Tulare and Kern Counties. Of 20 known occurrences, 19 (17 extant and 2 extirpated) are within the action area.	Agriculture; competition from nonnative plants; urbanization. Although heavy grazing has adversely affected some populations, light grazing and avoidance during the flowering period appears to benefit the species by reducing competition from nonnative plants.

Species	Status	Description and Habitat	Distribution	Primary Threats
	Fed/State/CNPS			
Boggs Lake hedge-hyssop (<i>Gratiola heterosepala</i>)	-/E/1B	Semiaquatic annual plant. Typically grows on margins of shallow lakes and large vernal pools. Less commonly found on loam and loamy sand soils. In smaller vernal pools, inhabits barren, muddy areas on extremely shallow soils. Elevations of known occurrences range from 26 feet in Solano County to more than 5,171 feet in Modoc County.	Endemic to northern California and southern Oregon. Distribution of populations is patchy even in areas of suitable habitat. In California, a total of 86 known occurrences are documented from Lassen County south to Madera County, with concentrations on the Modoc Plateau and in the Sacramento Valley. Action area supports 10 recent occurrences and 1 historic occurrence.	Loss and degradation of vernal pool habitat from agricultural and urban development, overgrazing, and off-highway vehicle traffic; hydrologic alteration; disturbance by disking and grading. Several occurrences on rangeland in the action area are threatened by cattle grazing and trampling.
Pale-yellow layia (<i>Layia heterotricha</i>)	-/-/1B	Annual herb in the sunflower family (Asteraceae); grows 5–35 inches tall and blooms March–June. Occurs in cismontane woodland, pinyon and juniper woodland, and valley and foothill grassland communities on alkaline or clay soils at elevations of 984–5,249 feet.	Endemic to California. Historically distributed throughout the southern Tehachapi Mountains, western San Joaquin Valley, southern Coast Ranges, and northern Western Transverse Ranges, in portions of Fresno, Kings, Kern, Monterey, Santa Barbara, San Benito, San Luis Obispo, and Ventura Counties. Of 30 recorded populations, 9 ranging in size from 5 to 1,000 plants have been surveyed recently; of these, 5 extant occurrences are within the action area.	Agricultural conversion; overgrazing.
Comanche Point layia (<i>Layia leucopappa</i>)	-/-/1B	Straw-colored annual herb in the sunflower family (Asteraceae); blooms March–April. Occurs in chenopod scrub and valley and foothill grassland communities on open slopes with heavy clay soils at elevations of 328–1,148 feet.	Endemic to California. Known from only 8 recorded populations in the Comanche Point area, Tehachapi Mountains (Kern County). All are within the action area and are presumed extant.	Agricultural conversion; development; overgrazing.
Legenere (<i>Legenere limosa</i>)	-/-/1B	Small annual herb in the bellflower family (Campanulaceae); blooms April–June. Occurs in vernal pools and wet areas at elevations of 3–2,887 feet.	Endemic to California, including Lake, Napa, Placer, Sacramento, Shasta, San Mateo, Solano, and Tehama Counties; historically also occurred in Sonoma and Stanislaus Counties. Of more than 50 recorded populations, only 2 (1 extant, 1 extirpated) are within in the action area, both in San Joaquin County.	Agricultural conversion; overgrazing.
Panoche peppergrass (<i>Lepidium jaredii</i> ssp. <i>album</i>)	-/-/1B	Tall annual herb in the mustard family (Brassicaceae); blooms February–June. Grows on alkali bottoms, slopes, washes, and alluvial fans with clay and gypsum-rich soils, in valley and foothill grasslands at elevations of 607–902 feet.	Occurs in Fresno, San Benito, and San Luis Obispo Counties. Of 13 known occurrences, 8 (3 extant and 5 extirpated) are located within the action area, in the Panoche Hills (western Fresno County).	Gravel mining; grazing.

Species	Status	Description and Habitat	Distribution	Primary Threats
	Fed/State/CNPS			
Congdon's lewisia (<i>Lewisia congdonii</i>)	-/Rare/1B	Perennial herb in the purslane family (Portulacaceae); blooms April–June. Grows in chaparral, cismontane woodland, lower montane coniferous forest, and upper montane coniferous forest communities on dry talus slopes and in rock crevices at elevations of 1,640–9,186 feet.	Endemic to California; known only from the Merced River Canyon (Mariposa County) and Kings River Canyon (Fresno County). Of 8 known occurrences, 3 are within the action area and are presumed extant.	Herbicide spraying; road widening; collecting; landslides.
Mason's lilaeopsis (<i>Lilaeopsis masonii</i>)	-/Rare/1B	Small (0.6–3 inches) turf-forming perennial herb in the carrot family (Apiaceae). Semiaquatic. Spreads by rhizomes, producing narrow jointed leaves. Blooms April–November. Grows in marshes, brackish and freshwater swamps, and riparian scrub at elevations of 0–33 feet, on saturated clay soils that are regularly inundated.	Endemic to California. Known range extends from the Napa River in Napa County east to the channels and sloughs of the Sacramento–San Joaquin Delta from Contra Costa County to Solano, Sacramento, Yolo, and San Joaquin Counties. Of 148 total occurrences, the action area supports 37 that are extant.	Erosion; channel stabilization; development; flood control projects; recreation; agriculture; shading resulting from marsh succession; competition with nonnative water hyacinth (<i>Eichhornia crassipes</i>). In addition, saltwater intrusion and changes in water quality resulting from decreased flows in the Delta reduce habitat suitability.
Mariposa lupine (<i>Lupinus citrinus</i> var. <i>deflexus</i>)	-/T/1B	Annual herb in the pea family (Fabaceae); blooms April–May. Grows in chaparral and cismontane woodland communities on granitic substrate with sandy soil at elevations of 1,312–2,001 feet.	Endemic to California. Known from only 6 occurrences on the west slope of the Sierra Nevada, south of the town of Mariposa (Mariposa County). Total area occupied is less than 125 acres; lack of historical records of the species outside its current range suggests that it has always been rare. All 6 occurrences are within the action area and are extant.	Grazing; factors associated with development (e.g., irrigation runoff and herbicides).
Showy madia (<i>Madia radiata</i>)	-/-/1B	Annual herb in the sunflower family (Asteraceae). Species is glandular and grows 4–35 inches; blooms March–May. Grows on grassy slopes of cismontane woodlands and grasslands with adobe clay soils at elevations of 82–3,691 feet.	Endemic to California; occurs in western San Joaquin Valley (San Joaquin, Stanislaus, Fresno, Kings, and Kern Counties), eastern San Francisco Bay Area, and southern Coast Ranges. Of 32 known occurrences, 12 are within the action area.	Grazing; competition with invasive nonnative plants. Could also be threatened by road maintenance activities and conversion of habitat to off-highway vehicle use.
Hall's bush mallow (<i>Malacothamnus hallii</i>)	-/-/1B	Evergreen shrub in the mallow family (Malvaceae); grows 39–197 inches tall and blooms May–September. Found in chaparral plant communities at elevations of 33–1,804 feet. Some populations grow on serpentine soils.	Endemic to California (Contra Costa, Merced, Santa Clara, and Stanislaus Counties). Of 17 known occurrences, 4 extant occurrences are within the action area.	Grazing; rooting by feral pigs; proposed reservoir at Los Banos Creek in Merced County.

Note: Hall's bush mallow is recognized only by CNPS. *The Jepson Manual* (Hickman 1993) includes this taxon in the treatment of *Malacothamnus fasciculatus*.

Species	Status	Description and Habitat	Distribution	Primary Threats
	Fed/State/CNPS			
San Joaquin woollythreads (<i>Monolopia [Lembertia] congdonii</i>)	E/-/1B	Annual herb in the sunflower family (Asteraceae). Produces several white, woolly, many-branched trailing stems up to 10 inches long; blooms March–May. Grows in chenopod scrub, valley and foothill grasslands, and alluvial fans with a sparse cover of saltbush, commonly in sandy soils, at elevations of 197–2,625 feet.	Endemic to southern San Joaquin Valley and surrounding hills. Historic range extended from southern Fresno and Tulare Counties (excluding the Tulare Lake bed) to Bakersfield and Cuyama Valley. Now occurs primarily near Carrizo Plain, Kettleman Hills, and Kettleman Plain. Of 87 known occurrences, 68 (46 extant, 22 possibly extirpated) are within the action area.	More than 60% of historically known populations have been eliminated by conversion of habitat to agricultural uses. Threats to remaining unprotected populations include heavy grazing (especially by sheep); oil field development; energy development; possibly also air pollution.
Pincushion navarretia (<i>Navarretia myersii</i> ssp. <i>myersii</i>)	-/-/1B	Small white-flowered annual herb in the phlox family (Polemoniaceae); blooms in May. Occurs in vernal pools at elevations of 66–1,083 feet.	Endemic to California (central Sierra Nevada foothills and central Great Valley). Known from only 12 occurrences in Amador, Lake, Merced, and Sacramento Counties. Action area supports 3 extant occurrences.	Potential loss of habitat due to development.
Colusa grass (<i>Neostapfia colusana</i>)	T/E/1B	Annual in the grass family (Poaceae); grows 4–12 inches tall and flowers May–July. Occurs in large or deep vernal pools on clay substrates at elevations of 16–656 feet.	Endemic to Sacramento and San Joaquin Valleys. Historical distribution included Merced, Stanislaus, Solano, and Colusa Counties. Populations are currently known only from Merced, Stanislaus, and Solano Counties. Of 59 occurrences, 51 (41 extant, 4 possibly extirpated, and 6 extirpated) are with the action area.	Conversion of vernal pools to agricultural and developed lands; heavy grazing by cattle; competition from introduced weedy species.
Bakersfield cactus (<i>Opuntia basilaris</i> var. <i>treleasei</i>)	E/E/1B	Spiny-stemmed succulent shrub in the cactus family (Cactaceae); produces large, showy magenta flowers in May. Grows in chenopod scrub, cismontane woodland, and valley or foothill grassland communities on sandy or gravelly soils at elevations of 394–1,739 feet.	Endemic to southern San Joaquin Valley. Once formed extensive colonies around Bakersfield, extending up the Kern River Canyon to the northeast, through the Caliente Creek drainage to the southeast, and to the Tejon Hills. Now restricted to a limited area of central Kern County near Bakersfield. All 44 known occurrences are within the action area; 33 are extant, 1 is possibly extirpated, and 10 are known extirpated.	Energy development; agricultural conversion; grazing; sand mining; vehicles.
San Joaquin Valley Orcutt grass (<i>Orcuttia inaequalis</i>)	T/E/1B	Small, grayish-green, sticky, aromatic, tufted annual in the grass family (Poaceae); blooms April–September. Grows in vernal pools at elevations of 98–2,477 feet.	Restricted to the San Joaquin Valley. Formerly common along the eastern margin of the Valley in Stanislaus, Merced, Fresno, Madera, and Tulare Counties; now mostly restricted to eastern Merced County, with additional occurrences in Madera, Tulare, and Merced Counties. All 48 known occurrences are within the action area; 28 are extant, 3 are possibly extirpated, and 17 are extirpated.	Almost half of the species' historical occurrences have been destroyed by conversion of grassland to agricultural uses. Additional threats include loss and degradation of habitat as a result of disking; hydrologic modification; urbanization; late spring grazing; and competition from nonnative weeds.

Species	Status	Description and Habitat	Distribution	Primary Threats
	Fed/State/CNPS			
Hairy Orcutt grass (<i>Orcuttia pilosa</i>)	E/E/1B	<p>Small tufted annual in the grass family (Poaceae); flowers May–September, typically producing several short stems, each with a dense inflorescence.</p> <p>Grows in vernal pools in rolling grasslands on remnant alluvial fans and stream terraces along eastern edge of Central Valley.</p>	<p>Endemic to east margin of Central Valley. Historically occurred from Tehama County south to Merced and Madera Counties. Currently, one-third of known populations are found in Tehama County, with other occurrences in Butte and Glenn Counties. Of 34 historically known populations, 24 remain; of these, only half are considered stable. In the action area, occurrences are known only in Madera and Stanislaus Counties.</p>	<p>Principal reason for species' decline has been loss of vernal pool habitat to agriculture and urbanization. Current threats include urbanization; agricultural activities and land conversion; off-highway vehicle use; highway expansion projects; competition from nonnative plants; possibly also grazing and trampling by livestock, depending on stocking level and timing and duration of grazing.</p>
Hartweg's golden sunburst (<i>Pseudobahia bahiifolia</i>)	E/E/1B	<p>Small annual; blooms March–April.</p> <p>Grows on grassy slopes in valley and foothill grasslands and at the edges of blue-oak woodland, usually on clay or shallow, well-drained, fine-textured, and gravelly soils on the north- or northeast-facing slopes of mima mounds, which are often associated with vernal pool complexes. Highest densities are usually on the upper slopes of mima mounds where grass cover is lowest.</p>	<p>Endemic to Central Valley. Historically, range may have extended from Yuba County south to Fresno County. Distribution is now concentrated in the Friant region (Fresno and Madera Counties) and the La Grange region (Stanislaus County). Of 20 known occurrences, 19 are within the action area, 15 of which are presumed extant. Most extant occurrences contain fewer than 200 plants.</p>	<p>Habitat loss caused by agricultural and urban development, levee construction, and pumice mining; overgrazing by cattle; competition with nonnative invasive plants; road construction, and off-highway vehicle use.</p>
San Joaquin adobe sunburst (<i>Pseudobahia peirsonii</i>)	T/E/1B	<p>Slender, woolly annual in the sunflower family (Asteraceae). Develops branching stems 4–24 inches tall; blooms March–April.</p> <p>Grows on heavy adobe clay soils in cismontane woodland and valley and foothill grassland communities at elevations of 295–2,625 feet.</p>	<p>Endemic to eastern San Joaquin Valley. Historically scattered from northern Kern County to Tulare and Fresno Counties. Now concentrated east of Fresno (Fresno County), west of Lake Success (Tulare County), and northeast of Bakersfield (Kern County). All 39 known occurrences are within the action area; 32 are extant, 2 are possibly extirpated, and 5 are extirpated.</p>	<p>Agriculture; grazing; development; road construction and maintenance; flood control activities.</p>
Keck's checkerbloom (<i>Sidalcea keckii</i>)	E/–/1B	<p>Annual herb in the mallow family (Malvaceae); blooms April–May, producing deep pink flowers.</p> <p>Grows in cismontane woodland and valley and foothill grassland communities with clay soils and serpentinite parent material at elevations of 394–1,395 feet.</p>	<p>Endemic to Tulare and Fresno Counties. All 3 known occurrences are within the action area; 1 is recent and 2 are historic.</p>	<p>Agricultural conversion; proposed development; possibly also grazing.</p>

Species	Status	Description and Habitat	Distribution	Primary Threats
	Fed/State/CNPS			
Oil neststraw (<i>Stylocline citroleum</i>)	-/-/1B	Annual herb in the sunflower family (Asteraceae); blooms March–April, producing a small, spherical woolly head. Habitat includes chenopod scrub, valley and foothill grasslands, and possibly coastal scrub; grows on clay soils at elevations of 164–1,312 feet.	Endemic to California. Historical distribution limited to Kern and San Diego Counties; now known only from the flats at Taft, the Kern River Canyon, and the Elk Hills (Kern County). Of 9 known occurrences, 8 extant occurrences are in the action area.	Urbanization; possibly also energy development, flooding, and fire.
Greene's tuctoria (<i>Tuctoria greenei</i>)	E/Rare/1B	Small tufted annual in the grass family (Poaceae); blooms May–September. Grows in vernal pools at elevations of 98–3,510 feet.	Endemic to the Central Valley. Historical range included parts of Shasta, Tehama, and Butte Counties and extended south through Fresno, Madera, San Joaquin, Stanislaus, and Tulare Counties. The 40 known occurrences are in Shasta, southern Tehama, Butte, Glenn, and eastern Merced Counties. Of these, 23 (7 extant, 7 possibly extirpated, and 9 extirpated) are within the action area.	Agricultural conversion; competition from weedy nonnative plants; overgrazing; residential development.
Kings gold (<i>Twisselmannia californica</i>)	-/-/1B	Annual herb in the mustard family (Brassicaceae); blooms March. Grows in chenopod scrub at an elevation of 213 feet.	One occurrence in Kings County.	

T = Threatened

E = Endangered

Rare = Listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

1B = CNPS List 1B (Plants rare, threatened, or endangered in California and elsewhere)

4 = CNPS List 4 species (Plants of limited distribution)

- = No listing

Sources: Cypher and Sandoval 1997; Kaye et al. 1990; Hickman 1993; 62 Federal Register 58, March 26, 1997; U.S. Fish and Wildlife Service 1997; California Department of Fish and Game 1998; Al-Shehbaz 1999; Gregory et al. 2001; California Department of Fish and Game 2000a, 2000b; California Native Plant Society 2001; California Natural Diversity Database 2002; U.S. Fish and Wildlife Service 2002a through i.

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Table 5-2. Overview of Action Area’s Special-Status Plants Not Covered by Proposed Habitat Conservation Plan

Species	Status ^a	Habitat Requirements	Distribution	Blooming Period	Potential to be Impacted by the Proposed Action
	Fed/State/CNPS				
Henderson’s bent grass <i>Agrostis hendersoni</i>	SC/-/3	Moist places in valley and foothill grassland, vernal pools, below 1,000 feet.	Scattered locations in Central Valley and adjacent foothills. Butte, Calaveras, Merced, Placer, Shasta, and Tehama Counties.	Apr–May	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Mount Pinos onion <i>Allium howellii</i> var. <i>clokeyi</i>	-/-/1B	Great Basin scrub, pinyon-juniper woodland, between 4,200 and 6,000 feet.	Endemic to the Mount Pinos region of the northern western transverse ranges, Ventura County	Apr–Jun	Low. Species’ geographic distribution and elevation range is largely outside the action area. CNDDDB records only one occurrence in action area, dated 1955.
Sharsmith’s onion <i>Allium sharsmithae</i>	-/-/1B	Rocky serpentine slopes in chaparral or cypress woodland, between 1,300 and 3,900 feet.	Diablo Range; San Francisco Bay region; Alameda, Santa Clara, and Stanislaus Counties.	Mar–May	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Yosemite onion <i>Allium yosemitense</i>	-/R/1B	Rocky, metamorphic substrates of broad-leaved upland forest, chaparral, cismontane woodland, lower montane coniferous forest, between 2,600 and 7,200 feet.	Central Sierra Nevada, including portions of Mariposa and Tuolumne Counties.	May–Jul	Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.
Suisun Marsh aster <i>Aster lentus</i>	SC/-/1B	Brackish and freshwater marsh, below 500 feet.	Sacramento–San Joaquin Delta, Suisun Marsh, Suisun Bay. Contra Costa, Napa, Sacramento, San Joaquin, and Solano Counties.	Aug–Nov	Low; impacts on species would be buffered by regulations protecting wetlands. Species would also be protected by requirements of PG&E’s existing biological resources program.
Alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	-/-/1B	Grassy flats and vernal pool margins, on alkali soils, below 200 feet.	Merced, Solano, and Yolo Counties; historically more widespread.	Mar–Jun	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Heartscale <i>Atriplex cordulata</i>	SC/-/1B	Alkali grassland, alkali meadow, alkali scrub, below 660 feet.	Western Central Valley and valleys of adjacent foothills.	May–Oct	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Crownscale <i>Atriplex coronata</i> var. <i>coronata</i>	-/-/4	Chenopod scrub, valley and foothill grassland, vernal pools, on fine alkaline soils below 660 feet.	Southern Sacramento Valley, San Joaquin valley, eastern south coast inner range, Alameda, Contra Costa, Fresno, Kings, Kern, Glenn, Merced, Monterey, San Joaquin, San Luis Obispo, Solano, and Stanislaus Counties.	Apr–Oct	Minimal; species’ range includes part of action area but CNDDDB shows no known occupied habitat in action area.

Species	Status ^a	Habitat Requirements	Distribution	Blooming Period	Potential to be Impacted by the Proposed Action
	Fed/State/CNPS				
Brittlescale <i>Atriplex depressa</i>	-/-/1B	Alkali grassland, alkali meadow, alkali scrub, chenopod scrub, playas, valley and foothill grasslands on alkaline or clay soils below 660 feet.	Sacramento Valley and valleys of adjacent foothills on west side of San Joaquin Valley.	May–Oct	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Earlimart orache <i>Atriplex erecticaulis</i>	-/-/1B	Valley and foothill grassland, 130 to 330 feet.	San Joaquin Valley in Kings, Kern, and Tulare Counties.	Aug–Sept	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
San Joaquin spearscale <i>Atriplex joaquiniana</i>	SC/-/1B	Alkali grassland, alkali scrub, alkali meadows, saltbush scrub, below 1,000 feet.	West edge of Central Valley from Glenn County to Tulare County.	Apr–Sept	Moderate to low; no known occurrences within 200 meters of PG&E infrastructure but species' habitat is common. However, species' habitat would be protected by HCP compensation for lesser saltscale and Bakersfield smallscale. Species would also be protected by requirements of PG&E's existing biological resources program.
Vernal pool saltscale (persistent-fruited saltscale) <i>Atriplex persistens</i>	-/-/1B	Dry beds of vernal pools, on alkaline soils, 33 to 380 feet.	Central Valley, from Glenn, Merced, Solano, Stanislaus*, and Tulare Counties.	Jul–Oct	Low; effects would be buffered by regulations protecting wetlands, and by HCP's measures for vernal pool protection. Species would also be protected by requirements of PG&E's existing biological resources program.
Subtle orache <i>Atriplex subtilis</i>	-/-/1B	Alkali scalds and alkali grasslands, often near vernal pools.	Central Valley, especially San Joaquin Valley: Butte, Fresno, Kings, Kern, Madera, Merced, and Tulare Counties.	Aug–Oct	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Lost Hills crownscale <i>Atriplex vallicola</i>	SC/-/1B	Alkali sink, alkaline vernal pool, saltbush scrub.	Lost Hills, vicinity of McKittrick in Kern County, scattered locations in Fresno, Kings, Kern, and Merced Counties.	Apr–Aug	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Kaweah brodiaea <i>Brodiaea insignis</i>	SC/E/1B	Cismontane woodland, valley and foothill grassland, on granitic or clay substrate.	Southern Sierra Nevada foothills, Kaweah and Tule River drainages, Tulare County.	Apr–Jun	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Alkali mariposa lily <i>Calochortus striatus</i>	SC/-/1B	Chaparral, chenopod scrub, Mohavean desert scrub, in alkaline meadows and ephemeral washes, 300 to 5,200 feet.	Western Mojave Desert, Kern, Los Angeles, San Bernardino, and Tulare Counties.	Apr–Jun	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Hoover's calycadenia (Hoover's rosinweed) <i>Calycadenia hooveri</i>	SC/-/1B	Cismontane woodland, valley and foothill grassland, on barren, rocky, exposed soil, 200 to 1,000 feet.	Northern and central Sierra Nevada foothills, Calaveras, Madera, Merced, Mariposa, and Stanislaus Counties.	Jul–Sep	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.

Species	Status ^a	Habitat Requirements	Distribution	Blooming Period	Potential to be Impacted by the Proposed Action
	Fed/State/CNPS				
San Benito evening-primrose <i>Camissonia benitensis</i>	T/-/1B	Chaparral, cismontane woodland, on serpentinite, alluvium, clay, or gravelly substrates.	Inner south Coast Ranges, lower Clear Creek drainage, Fresno and San Benito Counties.	May–Jun	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Kern River evening-primrose <i>Camissonia integrifolia</i>	-/-/4	Chaparral, sagebrush scrub.	Southern Sierra Nevada foothills, Kern County.	May	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Chaparral harebell <i>Campanula exigua</i>	-/-/1B	Rocky areas in chaparral, usually on serpentinite.	San Francisco Bay region, northern inner south Coast Ranges; Alameda, Contra Costa, San Benito, Santa Clara, and Stanislaus Counties.	May–Jun	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Sharsmith's harebell <i>Campanula sharsmithiae</i>	-/-/1B	Barren, rocky serpentine areas in chaparral, at 1,300 to 3,000 feet.	Southern San Francisco Bay region, northern inner south coast range, Mount Hamilton area; Santa Clara and Stanislaus Counties.	May–Jun	Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.
Lemmon's jewelflower <i>Caulanthus coulteri</i> var. <i>lemmonii</i>	-/-/1B	Valley and foothill grassland, pinyon and juniper woodland, at 260 to 4,000 feet.	San Joaquin Valley.	Mar–May	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
San Benito spineflower <i>Chorizanthe douglasii</i>	-/-/1B	Chaparral, cismontane woodland, lower montane conifer forest.	Primarily known from Monterey, San Benito, and San Luis Obispo Counties.		Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.
Mount Hamilton thistle <i>Cirsium fontinale</i> var. <i>campylon</i>	SC/-/1B	Freshwater seeps and streams on serpentine outcrops; chaparral, cismontane woodland, valley and foothill grassland, at 1,000 to 2,500 feet.	Alameda, Santa Clara, and Stanislaus Counties.	Apr–Oct	Low. Species is highly localized, and the likelihood that O&M or minor construction activities would overlap with occupied habitat is evaluated as small. Species would be protected by requirements of PG&E's existing biological resources program, and species' habitat would benefit from regulatory protection and HCP measures for wetlands.
Kern Canyon clarkia <i>Clarkia xantiana</i> ssp. <i>parviflora</i>	-/-/1B	Cismontane woodland.	Southern Sierra Nevada foothills, Kern River drainage, Kern County.	May–Jun	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.

Species	Status ^a	Habitat Requirements	Distribution	Blooming Period	Potential to be Impacted by the Proposed Action
	Fed/State/CNPS				
Beaked clarkia <i>Clarkia rostrata</i>	SC/-/1B	Annual grassland and blue oak-foothill pine woodland, on dry slopes, 200 to 1,500 feet.	Central Sierra Nevada foothills, San Joaquin Valley, Hell Hollow, and Merced River drainage. Merced, Mariposa, and Stanislaus Counties.	Apr–May	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Flaming trumpet <i>Collomia rawsoniana</i>	SC/-/1B	Lower montane coniferous forest, riparian forest.	Central Sierra Nevada foothills, Madera and Mariposa Counties.	Jul–Aug	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Mount Hamilton coreopsis <i>Coreopsis hamiltonii</i>	SC/-/1B	Steep shale talus slopes in cismontane woodland.	Eastern San Francisco Bay region, Santa Clara and Stanislaus Counties.	Mar–May	Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.
Mariposa cryptantha <i>Cryptantha mariposae</i>	-/-/1B	Chaparral on serpentine substrate.	Mariposa, Tuolumne, and Calaveras Counties.	Apr–May	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Hall's tarplant <i>Deinandra halliana</i> <i>Hemizonia clementina</i>	-/-/1B	Chenopod scrub, cismontane woodland, valley and foothill grassland/clay; elevation 980 to 3,100 feet.	Fresno, Monterey, San Benito, San Luis Obispo.	Apr–May	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Hospital Canyon larkspur <i>Delphinium californicum</i> ssp. <i>interius</i>	SC/-/1B	Openings in chaparral, mesic cismontane woodland, on moist slopes and ravines, 750 to 3,600 feet.	Inner South Coast Ranges, eastern San Francisco Bay, Alameda, Contra Costa, Merced, San Benito, Santa Clara, San Joaquin, and San Luis Obispo Counties.	Apr–Jun	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Kern County larkspur <i>Delphinium purpusii</i>	-/-/1B	Rocky areas in chaparral, cismontane woodland, pinyon-juniper woodland. Commonly on carbonate substrates.	Kern and Tulare Counties.	Apr–May	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Recurved larkspur <i>Delphinium recurvatum</i>	SC/-/1B	Subalkaline soils in annual grassland, saltbush scrub, cismontane woodland, vernal pools, 100 to 2,000 feet.	San Joaquin Valley and Central Valley of the South Coast Ranges, Contra Costa County to Kern County.	Mar–May	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Dwarf downingia <i>Downingia pusilla</i>	-/-/2	Vernal pools and mesic valley and foothill grasslands, to 1,500 feet.	California's Central Valley and South America.	Mar–May	Low; effects on vernal pool populations at least would be buffered by regulations protecting wetlands, and by HCP's measures for vernal pool protection. Species would also be protected by requirements of PG&E's existing biological resources program.

Species	Status ^a	Habitat Requirements	Distribution	Blooming Period	Potential to be Impacted by the Proposed Action
	Fed/State/CNPS				
Four-angled spikerush <i>Eleocharis quadrangulata</i>	-/-/2	Freshwater marsh, lake and pond margins, 100 to 1,650 feet.	Scattered California occurrences, Butte, Merced, Shasta, and Tehama Counties.	May-Sep	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Moss <i>Entosthodon kochii</i>	-/-/1B	Cismontane woodland (soil), at 1,600 to 3,200 feet.	Known from Mariposa County along the Merced River.	N/A	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Keil's daisy <i>Erigeron inornatus</i> var. <i>keilii</i>	-/-/1B	Lower montane conifer forest, meadows.	Kern and Tulare Counties	Jun-Sep	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Kings River buckwheat <i>Eriogonum nudum</i> var. <i>regirivum</i>	-/-/1B	Cismontane woodland on carbonate substrate.	Fresno County.	Aug-Nov	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Round-leaved filaree <i>Erodium macrophyllum</i>	-/-/2	Open sites, dry grasslands and shrublands below 4,000 feet.	Sacramento Valley, northern San Joaquin Valley, Central Western California, South Coast, and northern Channel Islands (Santa Cruz Island).	Mar-May	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Tejon poppy <i>Eschscholzia lemmonii</i>	-/-/1B	Valley and foothill grasslands.	Kern County.		Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.
Diamond-petaled poppy <i>Eschscholzia rhombipetala</i>	-/-/1B	Grassland or chenopod scrub; on clay soils, where grass cover is sparse enough to allow growth of low annuals.	Interior foothills of south Coast Ranges from Contra Costa County to Stanislaus Counties, Carrizo Plain in San Luis Obispo County.	Mar-Apr	Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.
Spiny-sepaled button-celery <i>Eryngium spinosepalum</i>	SC/-/1B	Valley and foothill grasslands, vernal pools, at 330 to 840 feet.	Eastern San Joaquin Valley and Sierra Nevada foothills; Calaveras, Fresno, Madera, Stanislaus, Tulare, and Tuolumne Counties	Apr-May	Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.
Talus fritillary <i>Fritillaria falcata</i>	SC/-/1B	Chaparral, oak woodland, conifer forest on serpentine talus.	Southern inner Coast Ranges; Alameda, Monterey, San Benito, Santa Clara, and Stanislaus Counties.	Mar-May	Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.

Species	Status ^a	Habitat Requirements	Distribution	Blooming Period	Potential to be Impacted by the Proposed Action
	Fed/State/CNPS				
Onyx Peak bedstraw <i>Galium angustifolium</i> ssp. <i>onycense</i>	-/-/1B	Rocky areas in cismontane woodland and pinyon-juniper woodland, on granitic substrate.	Onyx Peak area in Kern County.	Apr–Jul	Low. Species is highly localized, and the likelihood that O&M or minor construction activities would overlap with occupied habitat is evaluated as small. Species would also be protected by requirements of PG&E’s existing biological resources program.
Napa western flax <i>Hesperolinon serpentinum</i>	-/-/1B	Chaparral on serpentinite substrate.	Alameda, Lake, Napa, and Stanislaus Counties.	May–Jul	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Shevock’s hairy golden-aster <i>Heterotheca shevockii</i>	-/-/1B	Chaparral, cismontane woodland on serpentinite substrate.	Kern County.	Aug–Nov	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Rose-mallow (California hibiscus) <i>Hibiscus lasiocarpus</i>	-/-/2	Wet banks, freshwater marshes, generally below 135 feet.	Central and southern Sacramento Valley, deltaic Central Valley, Butte, Contra Costa, Colusa, Glenn, Sacramento, San Joaquin, Solano, Sutter, and Yolo Counties.	Jun–Sep	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Parry’s horkelia <i>Horkelia parryi</i>	SC/-/1B	Chaparral or cismontane woodland openings (especially on Ione Formation), on dry slopes below 3,500 feet.	Amador, Calaveras, El Dorado, and Mariposa Counties.	Apr–Jun	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Munz’s iris <i>Iris munzii</i>	-/-/1B	Cismontane woodland.	Tulare County.	Mar–Apr	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Knotted rush <i>Juncus nodosus</i>	-/-/4	Moist meadows and lake margins.	Inyo County; possibly Tulare County.	Jul–Sep	Low; effects would be buffered by regulations protecting wetlands. Species would also be protected by requirements of PG&E’s existing biological resources program.
Coulter’s goldfields <i>Lasthenia glabrata</i> ssp. <i>coulteri</i>	SC/-/1B	Grasslands, vernal pools, alkali sinks, and playas; on alkaline soils; below 4,600 feet.	Scattered locations in southern California from San Luis Obispo County to San Diego County. Outer southern Coast Ranges, south coast, northern Channel Islands, Peninsular Ranges, western Mojave desert.	Feb–Jun	Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.
Delta tule pea <i>Lathyrus jepsonii</i> var. <i>jepsonii</i>	SC/-/1B	Coastal and estuarine marshes, below 1,000 feet.	Central Valley, especially the San Francisco Bay region, Alameda, Contra Costa, Fresno, Marin, Napa, Sacramento, San Benito, Santa Clara*, San Joaquin, and Solano Counties.	May–Sep	Low; effects would be buffered by regulations protecting wetlands. Species would also be protected by requirements of PG&E’s existing biological resources program.

Species	Status ^a	Habitat Requirements	Distribution	Blooming Period	Potential to be Impacted by the Proposed Action
	Fed/State/CNPS				
Rayless layia <i>Layia discoidea</i>	SC/-/1B	Chaparral, cismontane woodland, lower montane conifer forest, on serpentinite, alluvial terraces, and talus substrate.	Fresno and San Benito Counties	May	Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.
Munz's tidy-tips <i>Layia munzii</i>	-/-/1B	Chenopod scrub, grasslands, flats and hillsides in alkaline clay soils, 170 to 2,500 feet.	Western San Joaquin Valley and interior foothills valleys from Fresno County to San Luis Obispo County.	Mar-Apr	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Jared's pepper-grass <i>Lepidium jaredii</i> ssp. <i>jaredii</i>	-/-/1B	Valley and foothill grassland (alkaline flats), 1,100 to 3,300 feet.	Kern, San Luis Obispo Counties.	Mar-May	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Madera leptosiphon <i>Leptosiphon serrulatus</i>	-/-/1B	Cismontane woodland, lower montane conifer forest.	Fresno, Kern, Madera, Mariposa, and Tulare Counties.	Apr-May	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Delta mudwort <i>Limosella subulata</i>	-/-/2	Muddy or sandy intertidal flats and marshes, streambanks in riparian scrub generally at sea level.	Deltaic Central Valley, Contra Costa, Sacramento, San Joaquin, and Solano Counties; Oregon.	May-Aug	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Sagebrush loeflingia <i>Loeflingia squarrosa</i> var. <i>artemisiarum</i>	-/-/1B	Great Basin scrub and Sonoran Desert scrub on sandy flats and dunes, 2,200 to 3,900 feet.	Inyo, Kern, Los Angeles, and Riverside Counties.	Apr-May	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Mt. Hamilton lomatium <i>Lomatium observatorium</i>	-/-/1B	Cismontane woodland, 4,000 to 4,360 feet.	Primarily Mt. Hamilton area, Santa Clara and Stanislaus Counties.	Mar-May	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Red-flowered lotus <i>Lotus rubriflorus</i>	SC/-/1B	Cismontane woodland, valley and foothill grassland, on sterile red soils and volcanic mudflow deposits.	Inner north Coast Ranges and San Francisco Bay area; Colusa, Stanislaus, and Tehama Counties.	Apr-Jun	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Orange lupine <i>Lupinus citrinus</i> var. <i>citrinus</i>	SC/-/1B	Chaparral, cismontane woodland, lower montane coniferous forest on granitic substrate.	Fresno and Madera Counties.	Apr-Jul	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Shaggyhair lupine <i>Lupinus spectabilis</i>	SC/-/1B	Chaparral, cismontane woodland on serpentinite substrate.	Mariposa and Tulare Counties.	Apr-May	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Indian Valley bush mallow <i>Malacothamnus aboriginum</i>	-/-/1B	Rocky areas in chaparral and oak woodland, often in burned areas.	Inner South Coast Ranges; Fresno, Monterey, and San Benito Counties.	Apr-Oct	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Moss (copper moss) <i>Mielichhoferia elongata</i>	-/-/2	Cismontane woodland (metamorphic rock, usually vernal mesic), 1,600 to 4,200 feet.	Fresno, Mariposa, Santa Cruz, Trinity, and Tulare Counties and other localities.	N/A	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.

Species	Status ^a	Habitat Requirements	Distribution	Blooming Period	Potential to be Impacted by the Proposed Action
	Fed/State/CNPS				
Slender-stemmed monkeyflower <i>Mimulus filicaulis</i>	SC/-/1B	Cismontane woodland, lower and upper montane coniferous forest, meadows, vernal mesic, loamy soils.	Mariposa and Tuolumne Counties.	Apr–Aug	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Slender-stalked monkeyflower <i>Mimulus gracilipes</i>	-/-/1B	Chaparral, on soils derived from decomposed granite, often in burns and disturbed areas.	Fresno, Mariposa and Tuolumne Counties.	Apr–Jun	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Kaweah monkeyflower <i>Mimulus norrisii</i>	-/-/1B	Rocky areas in chaparral, cismontane woodland.	Fresno and Tulare Counties.	Mar–May	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Calico monkeyflower <i>Mimulus pictus</i>	-/-/1B	Broad-leaved upland forest and cismontane woodland, in bare ground around gooseberry bushes or around granitic rock outcrops, 300 to 4,200 feet.	Southern Sierra Nevada foothills and Tehachapi Mountains of Kern and Tulare Counties.	Apr–May	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Kelso Creek monkeyflower <i>Mimulus shevockii</i>	SC/-/1B	Joshua tree woodland, pinyon-juniper woodland, on sandy, granitic substrate.	Kern County.	Mar-May	Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.
Prostrate navarretia <i>Navarretia prostrata</i>	-/-/1B	Mesic sites in alkaline valley and foothill grassland, coastal scrub, vernal pools	Los Angeles, Merced, Monterey, Orange, Riverside, San Bernardino, and San Diego Counties.	Apr–Jul	Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.
Shining navarretia <i>Navarretia nigelliformis</i> ssp. <i>radians</i>	-/-/1B	Cismontane woodland, valley and foothill grassland, vernal pools.	Fresno, Merced, Monterey, San Benito, San Luis Obispo.	May–Jun	Vernal pool occurrences would be protected by HCP's vernal pool measures.
Piute Mountains navarretia <i>Navarretia setiloba</i>	SC/-/1B	Oak woodland, pinyon-juniper woodland, grassland, clay soil, 5,000 to 7,000 feet.	Kern and Tulare Counties.	Apr–Jun	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Merced phacelia <i>Phacelia ciliata</i> var. <i>opaca</i>	SC/-/1B	Adobe or clay soils of valley floor, open hills, alkali flats, or grasslands.	Merced County.	Feb–May	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.

Species	Status ^a	Habitat Requirements	Distribution	Blooming Period	Potential to be Impacted by the Proposed Action
	Fed/State/CNPS				
Mount Diablo phacelia <i>Phacelia phacelioides</i>	SC/-/1B	Chaparral and oak woodland, adjacent to trails, on rock outcrops and talus slopes, at 2,000 to 3,000 feet.	South Coast Ranges from Contra Costa County to San Benito County	Apr-May	Minimal; no known occurrences within 200 meters of PG&E infrastructure. Proposed for HCP coverage but eliminated during HCP screening analysis based on location of known occurrences.
Charlotte's phacelia <i>Phacelia nashiana</i>	SC/-/1B	Joshua tree woodland, Mohavean Desert scrub, pinyon-juniper woodland on sandy or rocky areas on steep slopes or flats, on granitic soils, 2,000 to 7,000 feet.	Inyo, Kern, and Tulare Counties.	Mar-Jun	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Mount Diablo phacelia <i>Phacelia phacelioides</i>	SC/-/1B	Chaparral, oak woodland, adjacent to trails, on rock outcrops and talus slopes, at 2,000 to 3,000 feet.	Southern Coast Ranges from Contra Costa County to San Benito County.	Apr-May	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Slender-leaved pondweed <i>Potamogeton filiformis</i>	-/-/2	Freshwater marsh, shallow emergent wetlands.	Lassen, Merced, Mono, Placer, Santa Clara*, and Sierra Counties, Arizona, Nevada, Oregon, Washington.	May-Jul	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Moss <i>Pterygoneurum californicum</i>	-/-/1B	Playas, valley and foothill grasslands, on alkali soils at 30 to 300 feet.	Historic location in Kern County most likely extirpated; habitat still exists in Kern County.	N/A	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Parish's alkali-grass <i>Puccinellia parishii</i>	-/-/1B	Alkaline springs and seeps, at 2,300 to 6,000 feet.	Widely disjunctive localities in California, Arizona, New Mexico.	Apr-May	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Aromatic canyon gooseberry <i>Ribes menziesii</i> var. <i>ixoderme</i>	-/-/4	Chaparral, cismontane woodland	Fresno, Kern, and Tulare Counties.	Apr	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Sanford's arrowhead <i>Sagittaria sanfordii</i>	-/-/1B	Freshwater marshes, sloughs, canals, and other slow-moving water habitats, below 1,000 feet.	Scattered locations in Central Valley and Coast Ranges.	May-Aug	Low; effects would be buffered by regulations protecting wetlands. Species would also be protected by requirements of PG&E's existing biological resources program.
Moss <i>Schizymenium shevockii</i>	-/-/1B	Mesic cismontane woodland on metamorphic rock substrate, at 2,500 to 4,500 feet.	Known from only three occurrences in Fresno County.	N/A	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.

Species	Status ^a	Habitat Requirements	Distribution	Blooming Period	Potential to be Impacted by the Proposed Action
	Fed/State/CNPS				
Marsh skullcap <i>Scutellaria galericulata</i>	-/-/2	Wet sites, mesic meadows, streambanks; coniferous forest between 330 to 6,900 feet.	Northern high Sierra Nevada, Modoc plateau, El Dorado, Lassen, Modoc, Nevada, Placer, Plumas, Shasta, San Joaquin, and Siskiyou Counties; Oregon.	Jun-Sep	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Rayless ragwort <i>Senecio aphanactis</i>	-/-/2	Open sandy or rocky areas in oak woodland or coastal scrub, on alkaline soils.	Scattered locations in central western California and southwestern California, from Alameda County to San Diego County	Jan-Apr	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.
Arburua Ranch jewel-flower <i>Streptanthus insignis</i> ssp. <i>lyonii</i>	-/-/1B	Coastal scrub, sometimes on serpentinite substrate.	Merced County.	Mar-May	Minimal; no known occurrences within 200 meters of PG&E infrastructure.
Mason's neststraw <i>Stylocline masonii</i>	-/-/1B	Chenopod scrub, pinyon-juniper woodland, in sandy washes, 300 to 3,900 feet.	Scattered locations from Monterey County to Los Angeles County.	Mar-Apr	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Moss <i>Tortula californica</i>	-/-/1B	Chenopod scrub, valley and foothill grassland, sandy soil, 30 to 300 feet.	Known from Kern and Riverside Counties.	N/A	Minimal; species' range includes part of action area but CNDDDB shows no known occupied habitat in action area.
Wright's trichocoronis <i>Trichocoronis wrightii</i> var. <i>wrightii</i>	-/-/2	Floodplains and other moist places, on alkaline soils, below 1,500 feet.	Scattered locations in the Central Valley and on the south coast of Texas.	May-Sep	Potential impacts analyzed in this EIS/EIR; see Impact BIO5.

^aStatus explanations:

Federal

- T = Listed as threatened under the federal Endangered Species Act.
- SC = Species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
- = No listing.

State

- E = Listed as endangered under the California Endangered Species Act.
- R = Listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.
- SSC = Species of special concern in California.
- = No listing.

CNPS (California Native Plant Society)

- 1A = List 1A species: presumed extinct in California.
- 1B = List 1B species: rare, threatened, or endangered in California and elsewhere.
- 2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.
- 3 = List 3 species: plants about which more information is needed to determine their status.
- 4 = List 4 species: plants of limited distribution.
- = No listing.
- * = Known populations believed extirpated from that county.
- ? = Population location within county uncertain.
- N/A = Not applicable

Table 5-3. Overview of Special-Status Wildlife Species Covered by Proposed Habitat Conservation Plan

Species	Status Fed/CA	Habitat Requirements	Distribution	Reasons for Decline
Vernal pool fairy shrimp (<i>Branchinecta lynchi</i>)	T/-	Inhabits ephemeral pools (vernal pools) in grassland or basalt flow depressions. Pools typically have grass or mud bottoms. Also occurs in other wetlands with habitat characteristics similar to those of vernal pools, including alkaline rain-pools, rock outcrop pools, and some constructed sites. Occupied habitats range from 0.56-m ² puddles to pools exceeding 10 hectares. Pools must stay inundated long enough (3 weeks under optimal conditions) for the species to complete its life cycle, but species does not use riverine, marine, or other permanent waters.	From Shasta County in the north throughout the Central Valley to Tulare County and west to the central Coast Ranges. Disjunct populations occur in San Luis Obispo, Santa Barbara, and Riverside Counties. Most known locations are in the Sacramento and San Joaquin Valleys and along the east margin of the central Coast Ranges.	Conversion of vernal pool habitat to agricultural uses and urban development; water supply and flood control activities; destruction and modification of pools from filling, grading, disking, leveling, and other activities; modification of surrounding uplands that alters vernal pool hydrology.
Midvalley fairy shrimp (<i>Branchinecta mesovallensis</i>)	SC/-	Found in ephemeral aquatic habitats that contain standing water in the winter and spring; primarily found in vernal pools but sometimes also in vernal swales and other ephemeral wetlands such as roadside puddles and pools. Most occupied vernal pools are small (<200 m ²) and shallow (10 centimeters on average) with grassy bottoms. Life cycle can be completed in as little as 8 days, especially when late-season rains are followed by warm weather.	Endemic to Central Valley; 58 occurrences are known Sacramento, Yolo, Solano, Contra Costa, San Joaquin, Madera, Merced, and Fresno Counties. Also found in the Sierra Nevada foothills from Yuba County south to Kern County, and along the east flank of the Coast Ranges from the Sacramento Valley south to Santa Clara County.	Urban development; flood control activities; expansion of agricultural uses; development activities that alter local hydrology.
Vernal pool tadpole shrimp (<i>Lepidurus packardii</i>)	E/-	Found in grass-bottomed swales on old alluvial soils underlain by hardpan; and in mud-bottomed pools with highly turbid water. Occupied habitats range in size from 5 m ² to 36 hectares. Pools must dry out and reinundate for cysts to hatch. Adult populations generally persist until the habitat dries up.	Endemic to Central Valley. Most populations occur in the Sacramento Valley. Also reported from the Sacramento River Delta to the east side of San Francisco Bay, and from scattered localities in the San Joaquin Valley from San Joaquin County to Merced County.	Conversion of vernal pool habitat to agricultural uses and urban development; water supply and flood control activities; direct destruction and modification of pools from filling, grading, disking, leveling, and other activities; modification of surrounding uplands that alters vernal pool hydrology.
Valley elderberry longhorn beetle (VELB) (<i>Desmocerus californicus dimorphus</i>)	T/-	Hosted by elderberry shrubs (<i>Sambucus</i> spp.) in riparian forests and adjacent uplands that may also include cottonwoods (<i>Populus</i> spp.), willows (<i>Salix</i> spp.), ashes (<i>Fraxinus</i> spp.), oaks (<i>Quercus</i> spp.), and walnuts (<i>Juglans</i> spp.). Found in many different plant communities where elderberries grow but is most common in riparian woodlands and savannas, possibly because of the greater concentration of elderberries in these areas.	Throughout the Central Valley and foothills from the northern border of Shasta County to southern Kern County, and from the watershed of the Central Valley in the west to approximately 3,000 feet above sea level in the Sierra Nevada foothills.	Conversion of riparian and nonriparian habitats to agricultural uses and urban development
California tiger salamander (<i>Ambystoma californiense</i>)	T, SSC	Restricted to grasslands and low foothill regions that provide breeding habitat, including temporary ponds or pools, slower portions of streams, and some permanent waters. Unlikely to use permanent waters unless fish predators are absent. Requires dry-season refugia such as ground squirrel burrows within 1 mile of breeding sites.	Endemic to areas below 1,400 feet in the San Joaquin and Sacramento River valleys and bordering foothills. Also found in coastal valleys of central California. In the Central Valley, range extends from southern Sacramento County south to Tulare County.	Agriculture; urban development; introduction of nonnative predators such as fish, bullfrogs, and crayfish; loss of dry season refuge habitat due to land use changes; poisoning of ground squirrels.
Limestone salamander (<i>Hydromantes brunus</i>)	SC/T, FP	Requires moss-covered talus piles and cliff crevices for refugia. Extensive rock cover is a characteristic of all	Limited to scattered locations along the Merced River and its tributaries between	Lack of suitable habitat; fragility of suitable habitat; mining; road construction; alteration of natural

Species	Status Fed/CA	Habitat Requirements	Distribution	Reasons for Decline
California red-legged frog (<i>Rana aurora draytonii</i>)	T/SSC	<p>occupied sites; surrounding habitat typically consists of oak/buckeye woodland with a thick shrub understory. Species is often found on steep north- to east-facing slopes, which provide shade. Optimal habitat is moist but not wet; species is found more often on the slopes of ravines and canyons than on valley floors.</p> <p>Requires cool-water habitat (pools, streams, and ponds) with emergent and submergent vegetation. Most abundant in habitats with pools at least 2.5 feet deep, dense stands of overhanging willows (<i>Salix</i> spp.), and a fringe of tules (<i>Scirpus</i> spp.) or cattails (<i>Typha</i> spp.) Can inhabit either ephemeral or permanent streams and ponds, but populations probably cannot be maintained in ephemeral streams in which all surface water disappears during the dry season. Adults may take refuge during dry periods in rodent holes, leaf litter in riparian habitats, or large cracks in the bottom of dried ponds. Adults typically remain near streams or ponds, but some individuals have been observed to move more than 2 miles through upland habitat, typically during wet weather and/or at night.</p>	Briceburg and McClure Reservoir in Mariposa County.	hydrology.
Blunt-nosed leopard lizard (<i>Gambelia sila</i>)	E/E, FP	Found in undeveloped areas. Inhabits sparsely vegetated plains, alkali flats, grasslands, low foothills, canyon floors, and large washes; typically uses areas with sandy soils and scattered vegetation and is absent from thickly vegetated habitats. In the San Joaquin Valley, species is usually found in nonnative grassland, valley sink scrub, valley needlegrass grassland, alkali playa, and valley saltbush scrub habitats. Uses ground squirrel and kangaroo rat burrows for shelter and thermoregulation.	Endemic to San Joaquin Valley. Scattered occurrences at elevations below 2,600 feet, from Sierra Nevada foothills west to the Coast Ranges; on the Carrizo Plain; and in the Cuyama Valley west of the San Joaquin Valley.	Habitat disturbance, destruction, and fragmentation as a result of cultivation, petroleum and mineral extraction, off-highway vehicle use, and construction of transportation, communication, and irrigation infrastructure. Also threatened by pesticide use.
Giant garter snake (<i>Thamnophis gigas</i>)	T/T	Found in emergent wetlands, including marshes, sloughs, ponds, and small lakes; and in low-gradient waterways such as small streams, irrigation and drainage canals, and rice fields. Requires permanent water during the active season (early spring through mid-fall) to maintain populations of food organisms. Also requires herbaceous emergent vegetation for cover and foraging, along with open areas and grassy banks for basking. Uses small mammal burrows and crevices in upland habitat for winter hibernation sites and refuge from floodwaters. All three habitat components (cover and foraging habitat, basking areas, and protected hibernation sites) are needed for the species to persist in an area.	Endemic to Central Valley. Historically found from Butte County south to Kern County. Since the 1940s, the species has been extirpated from the southern end of its range; now found from near Gridley (Butte County) to Mendota Wildlife Area (Fresno County).	Habitat loss from urban and agricultural development and flood control activities; upstream watershed modifications; water storage and diversion projects; interruptions in water supply; poor water quality and water pollution; predation by mammals, birds, and introduced game fishes such as largemouth bass (<i>Micropterus salmoides</i>) and catfish (<i>Ictalurus</i> spp.); vehicle traffic; agriculture; channel maintenance (e.g., canal bank earthwork, mowing, herbicide use).
Swainson's hawk	SC/T	Primarily consumes insects and small rodents, foraging	Nests in the lower Sacramento and San	Conversion of native grassland and woodland

Species	Status Fed/CA	Habitat Requirements	Distribution	Reasons for Decline
<i>(Buteo swainsoni)</i>		in large, open plains and grasslands. Hay, grain, and most row crops also provide suitable foraging habitat during at least part of the breeding season. Vineyards and orchards are unsuitable because prey is scarce or unavailable due to vegetation density. Usually nests in large trees, preferring native species. Most nest sites are found in riparian habitats, but species may also use mature roadside trees, isolated individual trees in agricultural fields, small groves of oaks, and trees around farm houses.	Joaquin Valleys, the Klamath Basin, and Butte Valley. Highest nesting densities occur near Davis and Woodland, Yolo County	communities to agricultural and urban uses; pesticide contamination; mortality from shooting; disturbance at nesting sites.
White-tailed kite <i>(Elanus leucurus)</i>	SC/FP	Found in low-elevation grassland, savannah, oak woodland, wetland, agricultural, and riparian habitats. Preys mostly on voles (<i>Microtus</i> spp.) and other small mammals, foraging in undisturbed open grasslands, meadows, farmlands, and emergent wetlands. Requires large shrubs or trees for nesting and communal roosting; vegetation structure and prey populations appear to be more important than plant associations in determining habitat suitability. Nest trees range from small, isolated shrubs and trees to trees in relatively large stands.	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills to western San Diego County at the Mexico border.	Degradation and loss of breeding and foraging habitat; conversion of natural or agricultural lands to urban and commercial development; loss of vegetation needed by prey species because of farming techniques; increased competition for nest sites; drought; increased disturbance at nest sites.
Golden eagle <i>(Aquila chrysaetos)</i>	PR/SSC, FP	Typically found in rolling foothills, mountain areas, sage-juniper flats, and desert. Prefers territory with a favorable nest site, a dependable food supply (medium-sized to large mammals and birds), and broad expanses of open country for foraging. Hilly or mountainous country where takeoff and soaring are supported by updrafts is generally preferred to flat habitats; deeply cut canyons rising to open mountain slopes and crags is ideal habitat. Uses secluded cliffs with overhanging ledges, and large trees near forest edges or in small stands near open fields, for nesting and cover.	Found throughout much of California year-round; breeds in much of the state except for the center of the Central Valley.	Land use changes and encroaching urbanization; shooting; unintentional human disturbance in nesting and hunting areas; pesticides and pollutants; electrocution; collisions with wires and wind turbines.
Bald eagle <i>(Haliaeetus leucocephalus)</i>	T, PR/E, FP	Breeds in coastal areas and at rivers, lakes, and reservoirs with forested or cliff shorelines. Winters in aquatic areas offering open water for foraging. Nests in trees in mature and old growth forests that have some habitat edge and are within 1.25 miles of water offering suitable foraging. Tends to select nest trees that are more than about 0.3 mile from human development and disturbance. Uses snags or other hunting perches adjacent to large bodies of water or rivers to hunt for fish.	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County	Shooting; habitat destruction; electrocution from collisions with power lines; human disturbance; poisoning by DDT and other pesticides.
Western burrowing owl <i>(Athene cucularia hypugea)</i>	SC/SSC	Requires habitat with three key attributes: open, well-drained terrain; short, sparse vegetation; and underground burrows or burrow facsimiles. Occupies grasslands; deserts; sagebrush scrub; agricultural areas,	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas. Rare along south coast.	Habitat destruction, including conversion of grassland to agriculture and urban development; elimination of burrowing rodents through control programs.

Species	Status Fed/CA	Habitat Requirements	Distribution	Reasons for Decline
Bank swallow (<i>Riparia riparia</i>)	SC/T	including pastures and untilled margins of cropland; earthen levees and berms; coastal uplands; and urban vacant lots as well as the margins of airports, golf courses, and roads. Relies on burrows excavated by fossorial mammals such as ground squirrels (<i>Spermophilus</i> spp.), badgers (<i>Taxidea taxus</i>), skunks (<i>Mephitis</i> spp.), and coyotes (<i>Canis latrans</i>) for nesting and cover (Karalus and Eckert 1987). Can also use cavities in rock outcrops and artificial habitat such as concrete, asphalt, and piles of rubble for nesting sites. Nests in friable alluvial soils of vertical banks, cliffs, and bluffs along ocean coasts, rivers, streams, lakes, and reservoirs. Banks must be steep and tall enough to provide some protection from terrestrial predators. Typically nests in colonies; colonies range from 10 to more than 2,000 nests. During migration, species can be found in a variety of open and water-associated habitats.	Range in California has been reduced by 50% since 1900. Now found primarily along the upper Sacramento River; additional populations along the central coast north to San Francisco Bay, and in the Honey Lake and Lower Klamath Lake areas.	Habitat loss and degradation from flood and erosion control projects; erosion and bank undercutting during breeding season, as a result of wave wash from boats, high winds, storms, and reservoir releases; loss and modification of wetlands, grasslands, and other open habitats.
Tricolored blackbird (<i>Agelaius tricolor</i>)	SC/SSC	Forages year-round in annual grasslands; wet and dry vernal pools and other seasonal wetlands; agricultural fields; cattle feedlots; and dairies. May also forage in riparian scrub habitats and along marsh borders. Weed-free row crops and intensively managed vineyards and orchards do not serve as regular foraging sites. Most foraging occurs within 3 miles of nesting colony sites, but commute distances up to 8 miles have been reported. Breeding requires sites that offer access to water; a protected nesting substrate (flooded, thorny, or spiny vegetation); and a suitable foraging area with adequate insect prey within a few miles.	Breeding colonies occur in all Central Valley counties, primarily in central California; additional populations found in coastal and inland southern California locations and scattered sites in Oregon, western Nevada, and western coastal Baja California.	Habitat loss; destruction of nests; predation.
Buena Vista Lake shrew (<i>Sorex ornatus relictus</i>)	E/SSC	Found in moist vegetative communities with a mature overstory, a dense riparian understory, and 90–95% ground cover; requires abundant, diverse insect population for food.	Known from the Kern Preserve and Kern National Wildlife Refuge.	Conversion of riparian and wetland habitats to croplands; water diversions.
Riparian brush rabbit (<i>Sylvilagus bachmani riparius</i>)	E/E	Occupies riparian forest with a dense understory shrub layer. Closed-canopy forests are generally deficient in shrub understory to support the species. Common plants in suitable habitat include California wild rose (<i>Rosa californica</i>), California blackberry (<i>Rubus ursinus</i>), wild grape (<i>Vitis californica</i>), coyote brush (<i>Baccharis pilularis</i>), and various grasses.	Known from isolated populations along the lower San Joaquin and Stanislaus Rivers in the northern San Joaquin Valley; localities include Caswell Memorial State Park and the Paradise Cut area (San Joaquin County).	Habitat loss; wildfire; disease; predation; clearing of riparian vegetation; rodenticide use; flooding.
Riparian (San Joaquin Valley) woodrat (<i>Neotoma fuscipes riparia</i>)	E/SSC	Most abundant where shrub cover is dense; least abundant in open areas. In riparian areas, highest densities of woodrats and their nests commonly occur in	Historical distribution along the San Joaquin, Stanislaus, and Tuolumne Rivers, and Caswell State Park in San Joaquin,	Loss and fragmentation of habitat from cultivation and construction of large dams and canals; cattle grazing; inbreeding; catastrophic events such as fire,

Species	Status Fed/CA	Habitat Requirements	Distribution	Reasons for Decline
Tipton kangaroo rat (<i>Dipodomys nitratooides nitratooides</i>)	E/E	willow thickets with an oak overstory. More likely to be present where there are deciduous valley oaks and few live oaks. Occupies arid-land communities on alluvial fans and saline floodplain soils; occurs in higher densities where shrub cover is sparse to moderate. Burrow systems are most often located in open areas; commonly found in slightly elevated mounds, road berms, canal embankments, railroad beds, and at bases of shrubs and fences where windblown soils accumulate. For permanent occupancy, species requires terrain not subject to flooding. Soils with finer texture and higher salinity are more commonly associated with higher-density populations than are less saline soils.	Stanislaus, and Merced Counties; presently limited to San Joaquin County at Caswell State Park and a possible second population near Vernalis. Limited to scattered clusters west of the towns of Tipton, Pixley, and Earlimart (Tulare County); around Pixley National Wildlife Refuge, Allensworth Ecological Reserve, and Allensworth State Historical Park; around Delano and Lamont (Kern County); and at the Coles Levee Ecosystem Preserve and other scattered units in southern Kern County.	flooding, and drought. Loss of habitat from agricultural conversion, including cultivation of alkaline soils in saltbush, valley sink scrub, and relict dune communities; rodenticide use.
Giant kangaroo rat (<i>Dipodomys ingens</i>)	E/E	Prefers annual grassland communities with few or no shrubs, gentle slopes, and well-drained, sandy loam soils, typically in areas with scant rainfall that are free from winter flooding. Can also be found in shrub communities on a variety of soil types on slopes up to 22%. May colonize agricultural areas that have been fallow for at least a year, but does not use actively cultivated areas. A few burrow systems have been found in remnant patches of habitat along canals, roads, or other rights-of-way.	Known from the Panoche region (western Fresno and eastern San Benito Counties); the Kettleman Hills (Kings County); the Lokern and Elk Hills areas and various other uplands near Taft, Maricopa, and McKittrick (western Kern County); the Carrizo Plain Natural Area and San Juan Creek Valley (San Luis Obispo County); and the Cuyama Valley (Santa Barbara and San Luis Obispo Counties).	Urban and industrial development; mineral and petroleum extraction; construction of linear transportation and utility infrastructure; lack of grazing or fire to control vegetation density on conservation lands.
San Joaquin (Nelson's) antelope squirrel (<i>Ammospermophilus nelsoni</i>)	SC/T	Inhabits dry grasslands with sandy loam soils and widely spaced alkali scrub vegetation. Omnivorous; will feed on green vegetation, fungi, insects, and/or seeds, depending on availability.	Primarily found on the Carrizo and Elkhorn Plains (eastern San Luis Obispo County) and around Lokern and Elk Hills (western Kern County); smaller populations use marginal habitat in the foothills at the western edge of the San Joaquin Valley.	Habitat loss and fragmentation due to conversion of habitat to agricultural use; petroleum exploration and production; overgrazing by livestock.
San Joaquin kit fox (<i>Vulpes macrotis mutica</i>)	E/T	Because agriculture has replaced much of the Central Valley's native habitat, species appears to have adapted to marginal areas such as grazed, nonirrigated grasslands; peripheral lands adjacent to tilled and fallow fields; irrigated row crops, orchards, and vineyards; petroleum fields; and urban areas. Usually prefers areas with loose-textured soils suitable for den excavation, but is found on virtually every soil type. Where soils make digging difficult, may enlarge or modify burrows built by other animals, particularly California ground squirrels. May also use structures such as culverts, abandoned pipelines, and well casings as den sites.	Historical range unknown but believed to have extended from Contra Costa and San Joaquin Counties south to Kern County. Now uses areas of suitable habitat on the floor of the San Joaquin Valley and in the surrounding foothills of the Coast Ranges, Sierra Nevada, and Tehachapi Mountains from Kern County north to Contra Costa, Alameda, and San Joaquin Counties.	Habitat loss and fragmentation as a result of agricultural, industrial, and urban development; continued predation and competition from coyotes and other predators; decreases in prey populations due to catastrophic events such as extended drought or rain; accidents and disease (becoming increasingly important as species is subjected to more contact with humans, their pets, and livestock).

Species	Status Fed/CA	Habitat Requirements	Distribution	Reasons for Decline
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Status explanations:

Federal

- E = listed as endangered under the federal Endangered Species Act.
 T = listed as threatened under the federal Endangered Species Act.
 PT = proposed for federal listing as threatened under the federal Endangered Species Act.
 PR = federally protected under the Bald and Golden Eagle Protection Act.
 C = species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list, but issuance of the proposed rule is precluded.
 SC = species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
 – = no listing.

State

- E = listed as endangered under the California Endangered Species Act.
 T = listed as threatened under the California Endangered Species Act.
 FP = fully protected under the California Fish and Game Code.
 SSC = species of special concern in California.
 – = no listing.

Sources: Storer 1925; Neff 1937; Grinnell and Miller 1944; Wright and Wright 1949; Stebbins 1954; Orians 1961; Anderson 1968; Montanucci 1965, 1967, 1970; Feaver 1971; Stebbins 1972; Hansen and Brode 1980; Tordoff 1980; U.S. Fish and Wildlife Service 1980; Williams 1980; Bruce et al. 1982; Tollestrup 1982; Kauffman et al. 1983; U.S. Fish and Wildlife Service 1983; Brode and Bury 1984; Estep 1984; Kauffman and Krueger 1984; Schlorff and Bloom 1984; Evens and Page 1986; Jennings and Hayes 1985; U.S. Fish and Wildlife Service 1985; Bohn and Buckhouse 1986; Hansen 1986; Hayes and Jennings 1986; Orloff et al. 1986; Williams 1986; California Department of Fish and Game 1988; Ehrlich et al. 1988; Hayes and Jennings 1988; Jennings 1988; Pogsdon and Lindstedt 1988; Zeiner et al. 1988; Estep 1989; Frayer et al. 1989; Eng et al. 1990; Jennings and Hayes 1990; Johnsgard 1990; Wilen and Frayer 1990; Zeiner et al. 1990a, 1990b; Barr 1991; Beedy et al. 1991; Evens et al. 1991; California Department of Fish and Game 1992a, 1992b; Williams 1992; Germano and Williams 1993; Haug et al. 1993; Williams and Germano 1993; Anthony et al. 1994; Barry and Shaffer 1994; Eddleman et al. 1994; Fisher et al. 1994; Hansen and Tordoff 1994; Jennings and Hayes 1994; California Department of Fish and Game 1995; Hamilton et al. 1995; Hunt et al. 1995; Cook 1996; Helm 1996; Loredó et al. 1996; Baicich and Harrison 1997; Beedy and Hamilton 1997; Watson 1997; Hunt et al. 1998; U.S. Fish and Wildlife Service 1998; Beedy and Hamilton 1999; Eriksen and Belk 1999; Cook 1999; Garrison 1999; U.S. Fish and Wildlife Service 1999a; U.S. Fish and Wildlife Service 1999b; Belk and Fugate 2000; Buehler 2000; California Department of Fish and Game 2000b; Garrison 2000; Hamilton 2000; Center for Biological Diversity and VernalPools.org 2001; Fellers et al. 2001; Rogers 2001; U. S. Fish and Wildlife Service 2002; Center for Biological Diversity et al. 2003; Stebbins 2003; Alvarez in press; Bradbury et al. in preparation; 58 FR 54053; 59 FR 48136–48153; 64 FR 128 36454–36464; 65 FR 8881, 57242–57264; 66 FR 14626; 67 FR 10101; 68 FR 13498–13520, 28648–28670; 69 FR 3592–3598; Dunk 1995.

Table 5-4. Overview of Action Area's Special-Status Wildlife Not Covered by Proposed Habitat Conservation Plan

Species	Status	Habitat Requirements	Distribution
	Federal/State		
Merced Canyon shoulderband (=Allyn Smith's banded snail) (<i>Helminthoglypta allynsmithi</i>)	SC/-	Rocky slopes at approximately 1,500 feet elevation.	Rock slides in canyon of Merced River, from 3 to 6 miles below El Portal, Mariposa County.
California linderiella (<i>Linderiella occidentalis</i>)	SC/-	Vernal pools.	Central Valley, central and south Coast Ranges from Mendocino County to Santa Barbara County.
Ciervo aegialian scarab (beetle) (<i>Aegialia concinna</i>)	SC/-	Sand dunes and sandy substrates.	Four locations known from Contra Costa, San Benito, Fresno, and San Joaquin Counties.
Dry Creek cliff strider bug (<i>Oravelia pege</i>)	SC/-	Under rocks and in cracks at base of sheer, rocky cliff.	Only known from Dry Creek, Fresno County.
Hopping's blister beetle (<i>Lytta hoppingi</i>)	SC/-	Generally occurs in foothill habitats in the western San Joaquin Valley; feeds on flowers from March through June.	Southern and western San Joaquin Valley.
Moestan blister beetle (<i>Lytta moesta</i>)	SC/-	Feeds on flowers in the summer and fall, mostly composites.	Most records from San Joaquin Valley (Kern, Tulare, San Joaquin, and Stanislaus Counties); a few specimens collected from Santa Cruz County.
Molestan blister beetle (<i>Lytta molesta</i>)	SC/-	Feeds on flowers in the summer and fall, mostly composites.	San Joaquin Valley from Contra Costa County south to Tulare and Kern Counties.
Morrison's blister beetle (<i>Lytta morrisoni</i>)	SC/-	Feeds on flowers in the summer and fall, mostly composites.	San Joaquin Valley; records from Fresno and San Benito Counties.
Western spadefoot (<i>Spea hammondi</i>)	SC/SSC	Shallow streams with riffles and seasonal wetlands, such as vernal pools in annual grasslands and oak woodlands.	Sierra Nevada foothills, Central Valley, Coast Ranges, coastal counties in southern California.
Foothill yellow-legged frog (<i>Rana boylei</i>)	SC/SSC	Creeks or rivers in woodland, forest, mixed chaparral, and wet meadow habitats with rock and gravel substrate and low overhanging vegetation along the edge; usually found near riffles with rocks and sunny banks nearby.	Klamath, Cascade, north Coast, south Coast, Transverse, and Sierra Nevada Ranges up to approximately 6,000 feet.
Western pond turtle (<i>Clemmys marmorata</i>)	SC/SSC	Woodlands, grasslands, and open forests; occupies ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms and with watercress, cattails, water lilies, or other aquatic vegetation.	Northwestern subspecies occurs from Oregon border of Del Norte and Siskiyou Counties south along the coast to San Francisco Bay, inland through Sacramento Valley, and on the western slope of Sierra Nevada; southwestern subspecies occurs along the central coast of California east to the Sierra Nevada and along the southern California coast inland to the Mojave and Sonora Deserts; the subspecies' range overlaps through the Delta and Central Valley to Tulare County.
California horned lizard (<i>Phrynosoma coronatum frontale</i>)	SC/SSC	Grasslands, brushlands, woodlands, and open coniferous forest with sandy or loose soil; requires abundant ant colonies for foraging.	Sacramento Valley, including foothills, south to southern California; Coast Ranges south of Sonoma County; below 4,000 feet in northern California.

Species	Status	Habitat Requirements	Distribution
	Federal/State		
Silvery legless lizard (<i>Anniella pulchra pulchra</i>)	SC/SSC	Habitats with loose soil for burrowing or thick duff or leaf litter; often forages in leaf litter at plant bases; may be found on beaches and sandy washes and in woodland, chaparral, and riparian areas.	Along the Coast, Transverse, and Peninsular Ranges from Contra Costa County to San Diego County with spotty occurrences in the San Joaquin Valley.
Two-striped garter snake (<i>Thamnophis hammondi</i>)	-/SSC	Perennial and intermittent streams having rocky beds bordered by willow thickets or other dense vegetation; also inhabits large sandy riverbeds—such as the Santa Clara river—if a strip of riparian vegetation is present, and stock ponds if riparian vegetation and fish and amphibian prey are present.	Known range extends through the South Coast and Peninsular ranges west of the San Joaquin valley from the Salinas Valley and the southeastern slopes of the Diablo range, south to the Mexican border.
San Joaquin whipsnake (<i>Masticophis flagellum ruddocki</i>)	SC/SSC	Open, dry vegetative habitats with little or no tree cover (e.g., valley grassland and saltbush scrub), often in association with mammal burrows.	From Colusa County in the Sacramento Valley southward to the Grapevine in the San Joaquin Valley and westward into the inner coast ranges; known range of elevation from 60 to 3,000 feet. An isolated population occurs at Sutter Buttes
Snowy egret (<i>Egretta thula</i>) (rookery)	-/-	Nests in marshes, trees, or shrubs near freshwater and calm-water intertidal habitats.	Nesting colonies occur near Redwood City, San Rafael, Pittsburg, Los Banos, Bishop, and the south end of the Salton Sea; also nests in Santa Barbara and San Diego Counties along the Colorado River and on the northeastern plateau.
Great blue heron (<i>Ardea herodias</i>) (rookery)	-/-	Widely distributed in freshwater and calm-water intertidal habitats.	Nests in suitable habitat throughout California except at higher elevations in Sierra Nevada and Cascade mountain ranges.
Northern harrier (<i>Circus cyaneus</i>)	-/SSC	Grasslands, meadows, marshes, and seasonal and agricultural wetlands.	Occurs throughout lowland California; has been recorded in fall at high elevations.
Cooper's hawk (<i>Accipiter cooperii</i>)	-/SSC	Nests in a wide variety of habitat types, from riparian woodlands and digger pine-oak woodlands through mixed conifer forests.	Throughout California except high altitudes in the Sierra Nevada; winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range.
Yellow rail (<i>Coturnicops noveboracensis</i>)	-/SSC	Freshwater marshes, brackish marshes, coastal salt marshes, and grassy meadows.	Historical records of nests in Mono County east of the Sierra Nevada and formerly Marin County on the coast; winter records also on the coast from Humboldt County to Orange County.
Western snowy plover (inland population) (<i>Charadrius alexandrinus nivosus</i>)	-/SSC	Barren to sparsely vegetated ground at alkaline or saline lakes, reservoirs, ponds and riverine sand bars; also along sewage, salt-evaporation, and agricultural wastewater ponds.	Nests at inland lakes throughout northeastern, central, and southern California, including Mono Lake and Salton Sea.
Long-eared owl (<i>Asio otus</i>)	-/SSC	Nests in abandoned crow, hawk, or magpie nests, usually in dense riparian stands of willows, cottonwoods, live oaks, or conifers.	Permanent resident east of the Cascade Range from Placer County north to the Oregon border, east of the Sierra Nevada from Alpine County to Inyo County; scattered breeding populations along the coast and in southeastern California; winters throughout the Central Valley and southeastern California.
California horned lark (<i>Eremophila alpestris actia</i>)	-/SSC	Common to abundant resident in a variety of open habitats, usually where large trees and shrubs are absent (e.g., grasslands and deserts to dwarf shrub habitats) above tree line.	Found throughout much of the state, less common in mountainous areas of the North Coast and in coniferous or chaparral habitats.

Species	Status	Habitat Requirements	Distribution
	Federal/State		
Le Conte's thrasher (<i>Toxostoma lecontei</i>)	-/SSC	Desert scrub habitats, open washes, and Joshua tree habitat.	Resident of the deserts of southern California from Inyo County south to the Mexican border.
Gray vireo (<i>Vireo vicinior</i>) (nesting)	-/SSC	Breeds in arid, shrub-covered slopes with moderate cover and small trees, including oaks, pinyon pine, and juniper.	Summer resident throughout the mountains of the southeastern deserts from 2,000 to 6,500 feet, including the northeastern slopes of the San Bernardino Mountains, the San Jacinto Mountains, and the southern slopes of the Laguna Mountains.
Pale Townsend's (=western) big-eared bat (<i>Corynorhinus townsendii pallescens</i>)	SC/SSC	Mesic habitats; gleans insects from brush or trees and feeds along habitat edges.	Klamath Mountains, Cascades, Sierra Nevada, Central Valley, Transverse and Peninsular Ranges, Great Basin, and the Mojave and Sonora Deserts.
San Joaquin pocket mouse (<i>Perognathus inornatus</i>)	SC/-	Favors grasslands and scrub habitats with fine-textured soils.	Occurs throughout the San Joaquin Valley and in the Salinas Valley.
Short-nosed kangaroo rat (<i>Dipodomys nitratooides brevinasus</i>)	SC/SSC	Arid grassland and desert scrub communities on flat or gently sloping terrain with friable soils.	Western side of the San Joaquin Valley from Merced County to Kern County; isolated populations also in San Benito, San Luis Obispo, and Santa Barbara Counties.
Merced kangaroo rat (<i>Dipodomys heermanni dixonii</i>)	SC/-	Annual grassland and oak savanna.	Eastern portions of Merced and Stanislaus Counties.
Tulare grasshopper mouse (<i>Onychomys torridus tularensis</i>)	SC/SSC	Grasslands, chaparral, sagebrush and bitterbrush scrub, alkali desert scrub.	Madera, Kings, Kern, San Benito, Fresno and eastern San Luis Obispo Counties.
American badger (<i>Taxidea taxus</i>)	-/SSC	Preferred habitat includes grasslands, savannas, and mountain meadows near timberline; Requires sufficient food, friable soils, and relatively open uncultivated ground.	Throughout California, except for the humid coastal forests of northwestern California in Del Norte County and the northwestern portion of Humboldt County.

Status explanations:

Federal

- E = Listed as endangered under the federal Endangered Species Act.
- T = Listed as threatened under the federal Endangered Species Act.
- PT = Proposed for federal listing as threatened under the federal Endangered Species Act.
- C = Species for which USFWS has on file sufficient information on biological vulnerability and threat(s) to support issuance of a proposed rule to list.
- SC = Species of concern; species for which existing information indicates it may warrant listing but for which substantial biological information to support a proposed rule is lacking.
- = No listing.

State

- E = Listed as endangered under the California Endangered Species Act.
- T = Listed as threatened under the California Endangered Species Act.
- FP = Fully protected under the California Fish and Game Code.
- SSC = Species of special concern in California.
- = No listing.

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Environmental Consequences and Mitigation Strategies

Methodology for Impact Analysis

Impacts on biological resources were analyzed through a combination of quantitative and qualitative techniques, incorporating professional judgment in light of the nature of the proposed activities and current conservation practices.

Analysis focused primarily on the potential for activities enabled by the proposed action to affect special-status species, including but not limited to those specifically covered in the proposed HCP. Analysis addressed direct effects such as direct disturbance, injury, and mortality, as well as indirect effects through loss and degradation of habitat and other factors. Because the action area is so extensive and supports such a diversity of special-status plants and wildlife, this approach incorporated analysis of potential effects on sensitive habitats such as wetlands and riparian areas that are sometimes evaluated separately. Analyses did not address loss or disturbance of agricultural fields or other developed or disturbed lands, because the level of disruption associated with O&M and minor construction activities is expected to be commensurate with ongoing disturbances resulting from established uses on these types of parcels.³

Effects on HCP-covered species were evaluated on the basis of acreage estimates in the HCP, which analyzed the area potentially affected by O&M and minor construction during the 30-year permit term, and the resulting potential for effects on covered species. These analyses are presented in full in Chapter 3 of the proposed HCP, presented as Appendix B of this EIS/EIR. For brevity, they are not reproduced here.

For noncovered special-status species, additional calculations using the HCP methodology were performed to identify the acreage of habitat for noncovered special-status plants in the action area as a whole, and within 200 meters (650 feet) of PG&E infrastructure. The 200-meter limit was identified as part of PG&E's programmatic assessment of potential effects conducted during development of the proposed HCP. This distance represents the maximum width of the disturbance area for O&M activities; most disturbance areas are confined to the facility ROWs, which typically range from 10 to 150 feet wide on either side of the facility centerline. Because of the uncertainty associated with how much area outside the ROW would be disturbed in any given activity, PG&E conservatively assumed that a maximum of 25% of the habitat within 200 meters of infrastructure could be disturbed over the 30 year permit term. EIS/EIR impact analyses compared this disturbance estimate to the total acreage of occupied habitat for each species known to exist in the action area. The resulting

³ Potential for the proposed action to result in conversion of agricultural lands to nonagricultural uses is addressed separately in Chapter 4 (*Agricultural Resources*).

percentage was used to support a qualitative assessment of the likelihood for adverse impacts at the population level

Consistent with the methodology used in the HCP effects analysis, effects on vernal pool habitat were evaluated for the 30-year lifespan of the HCP and associated permits, with effects on other types of habitat addressed on an annual basis. Disturbances to natural vegetation in general were categorized on the basis of their potential to cause habitat loss affecting special-status species. Effects on noncovered special-status wildlife were analyzed qualitatively, based on the extent of suitable habitat in the action area vis-à-vis the species' known ranges.

Significance Criteria

For the purposes of this analysis, an impact was considered to be significant and to require mitigation if it would result in any of the following.

- A substantial adverse effect, either directly or through habitat modification or degradation, on any species identified as a candidate, sensitive, or special-status species in federal, state, or local plans, policies, or regulations, by USFWS or DFG, or by CNPS.
- A substantial adverse effect on federally protected wetlands as defined by CWA Section 404, including but not limited to marshes and vernal pools.
- A substantial adverse effect on sensitive wildlife habitats, especially riparian and wetland communities, due to fragmentation or isolation of such habitats.
- A substantial adverse effect on fish or wildlife resources as a result of obstructing or diverting natural flow in a river, stream, or lake; altering or removing materials from the bed, channel, or bank of a river, stream, or lake; or placing debris, waste, or other material where it can pass into a river, stream or lake.
- Substantial interference with the movement of any native resident or migratory wildlife species, with established native resident or migratory wildlife corridors, or with the use of native wildlife nursery sites.
- Substantial long-term degradation or loss of a sensitive plant community because of substantial alteration of landforms or other site conditions.
- Effects on common species or habitats that would contribute substantially to any of the effects identified above for special-status species.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted habitat conservation plan (HCP), natural communities conservation plan (NCCP), or other approved local, regional, or state habitat conservation plan.

Impacts and Mitigation Measures

Proposed Action

Impacts on Natural Vegetation

Impact BIO1—Potential disturbance or loss of natural vegetation. Table 5-5 summarizes anticipated impacts on natural vegetation communities, by County. Impacts on vernal pools are presented separately in Table 5-6. Note that because more than 90% of PG&E’s existing facilities are located in agricultural lands, urban areas, or grasslands—which are the three most areally extensive land cover types in the action area—almost all impacts affect these land-cover types. This is expected to continue to be the case in the foreseeable future. Note also that although comparatively little disturbance occurs in and adjacent to stream corridors, O&M and minor construction activities enabled under the proposed action could entail as many as 5–15 “wet crossings” per year, temporarily affecting approximately 0.1 to 0.5 acre each. Over the 30-year permit term, this could translate to a total between a minimum of about 15 acres and a worst-case maximum of about 225 acres of vegetation impacted. Because the specific locations where individual activities would be carried out cannot be predicted at this time, the acreage of various vegetation types potentially affected are not known. However, in general, “wet crossing” activities are most likely to affect woody riparian, freshwater wetland, and open water habitats; some could also affect grassland and agricultural fields and possibly also other habitat types.⁴

As described in Chapter 2, PG&E currently has a biological resources protection program in place (see under *PG&E’s Existing Environmental Programs and Practices*), which is intended to avoid and minimize disturbance to sensitive biological resources. Like all of the company’s existing environmental commitments and practices, the biological resources program would be brought forward in implementing the activities enabled under the proposed action. As part of this program, the company enforces individual accountability for the protection of biological resources, and requires monitoring and reporting of biological impacts for some types of projects. In addition, general BMPs to protect biological resources apply to company activities, consistent with the CPUC directive to provide reliable energy to the public in a way that avoids or substantially lessens the related environmental impacts; these include minimizing ground disturbance, keeping vehicles on existing roads, maintaining clean worksites, and implementing weed control measures as appropriate. The company’s environmental awareness training familiarizes project managers and construction leads with site conditions that may indicate biological sensitivity. Where appropriate, PG&E’s biologists review proposed new minor construction and some O&M activities for their potential to affect sensitive habitats, and identify additional protection measures where these are needed for a specific site

⁴ Additional analysis of effects of stream and lake crossings is provided in Impact BIO7 below, and in Impact WR6 in Chapter 8 (*Water Resources*). More detailed calculation of impacts on various habitat types as a result of O&M and minor construction activities is provided in Table 5-5.

and/or activity. As discussed in Chapter 2, the proposed HCP would extend the company's existing program of protective measures to additional species and activities (see Tables 2-7, 2-9, 2-11, 2-12, and 2-13 for specifics).

PG&E's existing biological resources program and new/expanded measures required under the proposed HCP would substantially avoid and minimize effects on natural vegetation. However, some permanent loss of habitat is still expected to occur, as summarized in Tables 5-5 and 5-6. Based on analysis presented in Chapter 3 of the HCP (see EIS/EIR Appendix B), routine O&M activities and minor construction are expected to result in the permanent loss of up to 1 acre and temporary (recoverable) disturbance of as much as 196 acres of natural vegetation annually over the 30-year life of the proposed action.⁵ The sensitive land-cover type subject to the greatest temporary effect is expected to be grassland, with a net disturbance of up to 105 acres per year. This could represent a significant impact.

Accordingly, PG&E has committed through the HCP to fund the acquisition and maintenance of natural vegetated habitat to conserve and promote the recovery of sensitive species within the action area. The acreage of conservation land required to compensate for effects on special-status species habitat will be identified based on a combination of documented and projected habitat losses, as described under *Environmental Commitments Enacted by the Proposed HCP* in Chapter 2. Permanent losses of suitable habitat⁶ other than wetlands will be compensated at a 3:1 ratio (3 acres created, restored, or conserved for every acre lost), and temporary losses of suitable habitat will be compensated at a ratio of 0.5:1, through several mechanisms, including establishment of conservation easements on existing PG&E lands, purchase of high-quality natural lands (particularly those that support particular species), purchase of credits from existing mitigation banks, and purchase of conservation easements from willing sellers (see Chapter 2 for additional strategies and information). Permanent and temporary loss of wetlands, including vernal pools, will be compensated at a 3:1 ratio using existing mitigation banks.

Compensation will be proposed in 5-year increments. As activities occur over the 5-year period subsequent to advanced compensation, PG&E will track actual impact acreages, and any compensation surpluses will be addressed by adjusting the compensation requirement during the subsequent 5-year compensation period. Toward the end of each 5-year period, the amount of available advance compensation will decline. If it appears that the amount of compensation required will exceed the amount remaining in that 5-year increment, PG&E will either purchase the next 5-year increment early, or purchase sufficient compensation so that project compensation stays ahead of impacts. By providing

⁵ The proposed HCP also identifies "other disturbances" that do not result in habitat loss; these are not included here because they have no effect on short- or long-term habitat availability. Noise effects are discussed separately in Chapter 12 (*Noise and Vibration*).

⁶ As discussed in Chapter 2, *suitable habitat* refers to habitat suitable for one or more of the species covered in the HCP.

Table 5-5. Continued

Land Cover	Disturbance Type	County									Total
		Fresno	Kern	Kings	Madera	Mariposa	Merced	San Joaquin	Stanislaus	Tulare	
Lands	Temporary Loss	-	-	-	-	-	-	-	-	-	-
	Other Disturbance	4	2	1	3	0	13	9	6	1	40
Permanent Freshwater Wetland	Permanent Loss	<1	<1	<1	<1	0	<1	<1	<1	<1	<1
	Temporary Loss	<1	<1	<1	<1	0	<1	<1	<1	<1	<1
	Other Disturbance	<1	1	<1	<1	0	1	<1	<1	<1	2
Seasonal Wetland (excluding vernal pools)	Permanent Loss	<1	<1	<1	<1	0	<1	<1	<1	<1	<1
	Temporary Loss	<1	<1	<1	<1	0	<1	<1	<1	<1	<1
	Other Disturbance	1	<1	<1	<1	0	1	<1	<1	<1	2
Upland Scrub	Permanent Loss	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
	Temporary Loss	<1	1	1	<1	1	<1	<1	<1	<1	3
	Other Disturbance	2	6	1	2	6	1	<1	<1	<1	17
Urban ⁵	Permanent Loss	-	-	-	-	-	-	-	-	-	-
	Temporary Loss	-	-	-	-	-	-	-	-	-	-
	Other Disturbance	153	188	25	60	3	71	192	44	11	747
Valley Oak Woodland	Permanent Loss	<1	<1	0	0	0	0	<1	<1	0	<1
	Temporary Loss	<1	15	0	0	0	0	<1	<1	0	15
	Other Disturbance	<1	93	0	0	0	0	<1	<1	0	93
Woody Riparian	Permanent Loss	<1	<1	<1	<1	0	<1	<1	<1	<1	<1
	Temporary Loss	1	<1	<1	<1	0	<1	1	<1	<1	2
	Other Disturbance	6	<1	1	1	0	2	4	3	<1	17
Total Permanent Loss		<1	1	<1	<1	<1	<1	1	<1	<1	4
Total Temporary Loss		40	49	12	20	18	18	22	12	5	196
Total Other Disturbance		523	810	186	409	235	353	533	187	116	3,352

Table 5-5. Continued

Land Cover	Disturbance Type	County									Total
		Fresno	Kern	Kings	Madera	Mariposa	Merced	San Joaquin	Stanislaus	Tulare	
Permanent Loss of Natural Vegetation		<1	<1	<1	<1	<1	<1	<1	<1	<1	1
Temporary Loss of Natural Vegetation		40	49	12	20	18	18	22	12	5	196

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Table 5-6. Estimated Disturbance of Vernal Pool Habitat by System and County^{a,b}

System	County									Total
	Fresno	Kern	Kings	Madera	Mariposa	Merced	San Joaquin	Stanislaus	Tulare	
Gas Transmission										
Permanent Loss ^c	<0.001	0	0	0.009	0	0.007	0.007	0.003	0	0.027
Temporary Loss	<0.001	0	0	0.004	0	0.003	0.004	0.001	0	0.013
Other Disturbance	<0.001	0	0	0.018	0	0.013	0.015	0.006	0	0.052
Gas Distribution										
Permanent Loss ^c	0.011	0.006	<0.001	0.001	0	0.003	0.009	0.007	0	0.038
Temporary Loss	0.003	0.002	<0.001	0.010	0	0.028	0.084	0.069	0	0.348
Other Disturbance	0.008	0.004	<0.001	0.001	0	0.002	0.006	0.005	0	0.027
Electric Transmission										
Permanent Loss ^c	<0.001	<0.001	<0.001	0.001	<0.001	0.001	0.001	<0.001	<0.001	0.004
Temporary Loss	0.021	0.001	0.026	0.047	0.002	0.083	0.058	0.019	0.013	0.270
Other Disturbance	0.089	0.005	0.113	0.203	0.008	0.357	0.250	0.083	0.057	1.164
Electric Distribution										
Permanent Loss ^c	0.003	<0.001	0.002	0.006	<0.001	0.016	0.004	0.001	0.003	0.036
Temporary Loss	0.014	0.001	0.011	0.031	0.001	0.077	0.021	0.007	0.016	0.178
Other Disturbance	0.149	0.011	0.112	0.333	0.016	0.825	0.224	0.072	0.172	1.914
Total										
Permanent Loss ^c	0.014	0.006	0.003	0.017	<0.001	0.026	0.021	0.0120	0.003	0.104
Temporary Loss	0.038	0.004	0.037	0.083	0.003	0.164	0.085	0.030	0.029	0.473

Notes:

^a Acreages are for vernal pool areas within worksites (including access corridors) but not their surrounding watersheds.

^b Values may not sum exactly to totals because of rounding error; values were not rounded off during intermediate steps in calculations.

^c O&M activities potentially excavating areas not previously excavated were considered to permanently alter vernal pools. Consequently, disturbance associated with activities G8, G14, G15, G16, E12, E13, and E14 was considered to cause permanent loss of vernal pools (i.e., for these activities disturbance temporarily altering other land-cover types was considered to permanently alter vernal pools).

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compensation in 5-year increments and purchasing additional compensation lands early if it appears that they will run out of excess compensation, PG&E will stay ahead of project impacts.

As discussed in Chapter 2, there is some uncertainty with respect to actual effects for very limited distribution wildlife and very rare plants. The HCP is written to avoid, minimize, and mitigate effects to all covered species, but pre-activity surveys for the rarest wildlife species (i.e., riparian brush rabbit, Buena Vista lake shrew, riparian woodrat, and limestone salamander) will ultimately determine if there is the potential for an effect and if a particular activity needs to be mitigated; in these instances, mitigation must occur in advance of the impact. Potential effects for the very rare plant species will need to be similarly determined. In instances where the rarest of plants could be affected, substantial efforts will be made to avoid and minimize effects, and if this is not possible, the effects will be mitigated as soon as possible within 2 years of the effect.

In summary, in light of the existing environmental programs and practices PG&E will carry forward in implementing activities enabled under the proposed action, and the protection, conservation, and compensation measures provided by the proposed HCP, **impacts on natural vegetation are expected to be less than significant.**

Mitigation Measure—No mitigation is required.

Impact BIO2—Potential disturbance or loss of vernal pool habitat. Vernal pools are of particular concern as habitat because of their potential to support special-status invertebrates, including the three covered shrimp species.⁷ Based on analysis in the HCP, routine O&M and minor construction activities are expected to temporarily disturb 0.473 acre and permanently remove 0.104 acre of vernal pool habitat annually over the 30-year life of the proposed action. Disturbance and loss of vernal pool habitat could occur as a result of several factors, including alteration of topography due to ground-disturbing activities; water quality degradation through increased erosion and sediment delivery; settling of construction-related dust; and herbicide use. Various O&M activities also have the potential to spread invasive weeds that could reduce habitat quality within vernal pools. At their worst, impacts on vernal pool habitat could be significant.

To address these concerns, PG&E will continue all existing biological resources measures, including herbicide BMPs, and the proposed HCP would establish additional avoidance and minimization measures (AMMs), as described in Chapter 2. These include defining exclusion zones prior to O&M activities, where feasible; and avoiding work during periods when vernal pool habitat is wet. The HCP also includes AMMs and BMPs that would help to avoid indirect impacts on vernal pools by controlling erosion and sedimentation, and the spread

⁷ As discussed in the proposed HCP (Appendix B of this EIS/EIR), only about 30% of the action area's vernal pool habitat is estimated to be occupied by the covered shrimp species. However, PG&E plans to assume that all vernal pool habitat is occupied, and will implement AMMs and compensation accordingly.

of invasive weeds. The proposed program of AMMs would avoid or substantially reduce potential effects of O&M and minor construction activities on water and habitat quality in vernal pools. In addition, PG&E will provide habitat compensation for effects of O&M and minor construction activities, as described in Chapter 2 and above in Impact BIO1. With the AMMs and compensation identified in the proposed HCP, **impacts on vernal pool habitat in the action area are expected to be less than significant.**

Mitigation Measure—No mitigation is required.

Impacts on Covered Special-Status Species

Impact BIO3—Potential disturbance or loss of covered special-status plant species and their habitat. Routine O&M and minor construction activities enabled under the proposed action have the potential to result in direct and indirect effects on plants within the action area (area of effect), including the 42 HCP-covered species. Direct and indirect effects could occur in a variety of ways, discussed in the following paragraphs.

Direct effects could occur through several mechanisms: trampling, crushing, and/or burial during O&M or minor construction activities; burning; and inadvertent damage or mortality due to herbicide use. At worst, impacts could be significant. However, as discussed above and in Chapter 2, PG&E will continue existing biological resources BMPs, including those for herbicide use, and the proposed HCP provides a comprehensive conservation program to avoid and minimize impacts on covered plant species and provide long-term protection of covered species by protecting biological communities in the HCP area. It includes general measures as well as specific measures for individual covered species (see Tables 2-9 and 2-13 for details). **With existing protection and this new program in place, direct effects on covered special-status species are expected to be less than significant.**

Indirect effects are most likely to result from disturbance or degradation of habitat as a result of O&M or minor construction activities. No permanent removal of occupied habitat is expected to occur, but between 4 and 30 acres of habitat occupied by one or more of the 42 HCP-covered plant species may be disturbed by O&M activities over the 30-year permit term. Disturbance would be temporary (i.e., recoverable over time), but could affect the local success of covered plant species. Some 15 of the covered species are not expected to be affected by O&M activities (see HCP effects analyses in Chapter 3 of Appendix B). An additional three of the covered species—*Castilleja campestris* ssp. *succulenta*, *Lilaeopsis masonii*, and *Opuntia basilaris* var. *treleasei*—are expected to undergo temporary adverse effects. For these three species combined, it is estimated that 4–8 acres of occupied habitat would be temporarily affected over the permit term. Occupied habitat for most of the remaining 24 covered plant species could also be temporarily affected although it is difficult to predict the precise extent of disturbance, because the specific location and nature of all activities that would take place over the 30-year lifespan of the proposed action is uncertain at this time. In summary, for all of the HCP-covered plant

species, the extent of temporary habitat disturbance would be limited, but significant effects could nonetheless occur.

Accordingly, as described in Chapter 2, the proposed HCP would also provide a mechanism to compensate for habitat loss through a variety of strategies, including establishment of conservation easements on existing PG&E lands, purchase of high-quality natural lands, purchase of credits from existing mitigation banks, and purchase of conservation easements from willing sellers (see Chapter 2 for additional information and strategies). Priority would be placed on high-quality habitat with attributes that maximize its potential to be successfully managed for habitat conservation (see related discussions in Chapter 3, *Land Use and Planning*). In addition, a comprehensive monitoring and adaptive management program would assess, evaluate, and adapt management prescriptions to ensure that the HCP's defined resource management objectives continue to be met. Consequently, **indirect impacts related to habitat degradation as a result of O&M and minor construction activities are expected to be less than significant with the proposed HCP in place.**

Habitat used by the HCP-covered plant species could also be degraded as an indirect result of activities that cause erosion or facilitate the spread of invasive nonnative plant species. At worst, impacts could be significant, but are already substantially addressed by PG&E's existing program of erosion and noxious weed control measures (see *Biological Resources Program* and *Water Quality Protection Program* under *PG&E's Existing Environmental Programs and Practices* section of Chapter 2). Additional protection would be provided in AMMs specified in the proposed HCP (see Table 2-9). **Indirect impacts related to the effects of erosion and invasive nonnative species on habitat quality are thus expected to be less than significant with PG&E's existing biological and water resources programs and the proposed HCP in place.**

In summary, in light of the existing environmental programs and practices PG&E will routinely implement under the proposed action, and the additional protection, conservation, and compensation measures provided by the proposed HCP, **direct and indirect impacts on the 42 covered special-status plant species would be less than significant.**

Mitigation Measure—No mitigation is required.

Impact BIO4—Potential disturbance or loss of covered special-status wildlife species and their habitat. Routine O&M and minor construction activities have the potential to result in direct disturbance, injury, or mortality of wildlife in the action area, including the 23 special-status species covered by the proposed HCP. Additional indirect effects could result from temporary and permanent loss or degradation of habitat, which in turn could reduce local population size and/or lower reproductive success. At worst, both direct and indirect impacts could be significant.

The proposed HCP covers 23 special-status wildlife species (Table 5-3). As identified above, approximately 196 acres of habitat with the potential to support one or more of the covered species would be subject to temporary disturbance

(i.e., disturbance that is recoverable over time without human intervention) each year over the 30-year permit term. The habitat type subject to the greatest disruption is expected to be grassland, with a net disturbance of up to 105 acres per year. In addition, up to 1 acre of habitat could be permanently lost each year over the permit term.

Impacts on wildlife are already substantially addressed by PG&E's existing biological resources program (see *PG&E's Existing Environmental Programs and Practices* section of Chapter 2). As discussed in Impacts BIO1 through BIO3 above, and in Chapter 2, the proposed HCP would expand on PG&E's current practices by establishing a conservation program specifically designed to avoid and minimize impacts on the 23 HCP-covered species; and to provide long-term protection of covered species by protecting biological communities in the action area. It includes a variety of AMMs specific to each covered wildlife species (see Tables 2-9, 2-11, and 2-12 for details). The intent of the AMM program is to ensure consistent implementation of protective measures when activities are conducted in sensitive areas; as such, it includes protections aimed at reducing direct take as well as measures to protect habitats used by covered wildlife species. In addition, to offset any habitat impacts that cannot be avoided, PG&E has committed through the HCP to provide compensation for habitat loss and disturbance. Finally, a comprehensive monitoring and adaptive management program would assess, evaluate, and adapt management prescriptions to ensure that the HCP's defined resource management objectives continue to be met.

In summary, in light of the existing environmental programs and practices PG&E will routinely implement under the proposed action, and the additional protection, conservation, and compensation measures provided by the proposed HCP, **direct and indirect impacts on the 23 covered special-status wildlife species would be less than significant.**

Mitigation Measure—No mitigation is required.

Impacts on Non-Covered Special-Status Species

Impact BIO5—Potential loss of non-covered special-status plant species and their habitat. In addition to the special-status plants covered in the proposed HCP (Table 5-1), the action area may support as many as 88 additional plant species that are not now federally or state-listed and are not expected to be listed within the proposed 30-year HCP term but nonetheless qualify for some form of special status. These species are listed in Table 5-2. Although these species are not subject to the protections afforded to listed species under the federal and state ESAs, CEQA requires that potential effects on them be analyzed, and if significant, mitigated.

A number of the species listed in Table 5-2 have ranges that include all or part of the action area, and suitable habitat for them is present, but they have not been reported as occurring in the action area (California Department of Fish and Game 2004). These include crownscale, Kern Canyon clarkia, Kern River evening-primrose, flaming trumpet, four-angled spikerush, Keil's daisy, Kings River

buckwheat, sagebrush loeflingia, Mount Hamilton lomatium, Kaweah monkeyflower, calico monkeyflower, Piute Mountains navarretia, Merced phacelia, Charlotte's phacelia, slender-leaved pondweed, Parish's alkali-grass, Mason's neststraw, and several species of mosses. Because these species are not known to occur in the action area, preliminary EIS/EIR analysis evaluated them as very unlikely to experience significant impacts as a result of O&M or minor construction activities enabled under the proposed action, and they are not analyzed further. These species are indicated on Table 5-2.

Some of the species listed in Table 5-7 were considered for HCP coverage during development of the proposed HCP, but were ultimately eliminated because HCP screening conducted by PG&E, USFWS, and DFG concluded that they were very unlikely to be significantly affected by O&M and minor construction even with no HCP in place, because they are not known to occur within 200 meters (650 feet) of existing PG&E infrastructure, although suitable habitat may be present. These species were reconsidered for inclusion in the EIS/EIR analyses, but were ultimately excluded because preliminary EIS/EIR evaluation reached a similar conclusion that the likelihood of significant impacts was minimal. In addition, PG&E will continue its current biological resources program for the activities enabled under the proposed action. This will provide protection in the unlikely event of an unrecorded occurrence in closer proximity to an existing ROW, and will also require the company to assess whether any of these species is present in the area potentially affected by proposed new minor construction activities and to implement appropriate protective measures if so (see *Biological Resources Program* under *PG&E's Existing Environmental Programs and Practices in Chapter 2* for details). These species are also indicated on Table 5-2.

A further 14 of the species listed in Table 5-2 were not considered for HCP coverage because they were evaluated as less sensitive and/or less likely to become listed during the lifespan of the proposed action, but also fall into the category of species that are known to occur in the action area, but do not occur within 200 meters (650 feet) of existing PG&E infrastructure (California Department of Fish and Game 2004). They include Henderson's bent grass, Sharsmith's onion, alkali milk-vetch, San Joaquin spearscale, Kaweah brodiaea, alkali mariposa lily, San Benito evening-primrose, Hall's tarplant, Hospital Canyon larkspur, Napa western flax, Jared's pepper-grass, red-flowered lotus, and Arburua Ranch jewelflower. Like the other species that occur in the action area but do not occur in close proximity to PG&E infrastructure, they are unlikely to be significantly affected by activities enabled under the proposed action, and were also eliminated from detailed analysis, as indicated on Table 5-2.

Several additional species were eliminated from detailed analysis based on various "outside" mitigating factors, as summarized in Table 5-2. For instance, although the CNDDDB shows one occurrence of Mt. Pinos onion in the action area, the species' geographic range is largely outside the action area, and Mt. Pinos onion is typically found at elevations of 4,200 to 6,000 feet. This species is thus unlikely to be affected by activities enabled under the proposed action. Other species would be protected by various laws or regulations in addition to the general protection afforded by PG&E's biological resources program. Some

would also benefit by measures implemented under the HCP. For example, effects on Suisun Marsh aster, Mount Hamilton thistle, knotted rush, Delta tule pea, Sanford's arrowhead, and some occurrences of dwarf downingia would be buffered by federal and state regulations protecting water and habitat quality and controlling invasive activities in wetlands, while the HCP measures for vernal pool protection would help to avoid or reduce effects on vernal pool saltscale, some occurrences of dwarf downingia, and some occurrences of shining navarretia; these species are also unlikely to be substantially affected by activities under the proposed action. Species such as Mount Hamilton thistle and Onyx Peak bedstraw, whose distribution is very limited, are also considered unlikely to be affected because the probability of work sites' overlapping their occurrences is low. They would also be protected by PG&E's requirement that company activities avoid disturbance to small, localized populations of special-status species.

Detailed analysis focused on the 29 species listed in Table 5-7.

As discussed in the proposed HCP (see Appendix B of this EIS/EIR), disturbance related to O&M activities is expected to be fully recoverable over time. As identified in *Methodology* above, and based on PG&E's experience with O&M in the action area to date, analysis assumed that a maximum of 25% of a species' potentially occupied habitat within 200 meters of PG&E infrastructure could be disturbed over the 30-year permit term. This is considered a conservative (worst-case) assumption overall; in most cases, impacts of O&M activities are confined to a much narrower corridor. In addition, while the level of disturbance (percentage of existing habitat affected within the disturbed area) could be somewhat greater in grassland areas, it would likely be much less in chaparral, woodland, and forest habitat, where equipment and foot traffic would be constrained by denser vegetation. Moreover, because O&M activities are ongoing, species that cannot tolerate the types of disturbance associated with O&M are unlikely to be present in the areas most likely to be disturbed, although they may be present in adjacent portions of the broader impact corridor.

Chaparral, woodland, and/or forest species, for which the 25% maximum disturbance estimate is probably overly conservative, include Kern County larkspur, Shevock's hairy golden-aster, Munz's iris, orange lupine, Indian Valley bush mallow, and aromatic canyon gooseberry. Even assuming a maximum of 25% disturbance of known habitat, the highest level of disturbance for any of these species would be about 15% of the action area's potentially occupied habitat (Shevock's golden-aster), but as discussed above, actual disturbance levels would likely be much lower.

For another ten of the species listed in Table 5-7, even the conservative worst-case assumption would represent disturbance of less than 5% of potentially occupied habitat in the action area: brittlescale (which would benefit from HCP measures and compensation for other *Atriplex* species); subtle orache (which would benefit from HCP measures and compensation for vernal pools and for other *Atriplex* species, and possibly also from protection of grassland habitat); Lost Hills crownscale (which would benefit from HCP vernal pool measures and measures for other *Atriplex* species); Hoover's calycadenia; chaparral harebell;

Table 5-7. Summary of Habitat Acreage Impacted and Potential HCP Benefits—Noncovered Special-Status Plants

Species	Potentially Occupied Habitat in Action Area	Potentially Occupied Habitat within 200 m of PG&E Infrastructure	Maximum Estimated Disturbance Over Permit Term	Potential Benefits from New HCP Measures
Heartscale <i>Atriplex cordulata</i>	6,793 acres	1252 acres	313 acres (5%)	Species would receive some benefit from HCP measures and compensation for lesser saltscale and Bakersfield smallscale.
Brittlescale <i>Atriplex depressa</i>	837 acres	40 acres	10 acres (1%)	Species would receive some benefit from HCP measures and compensation for lesser saltscale and Bakersfield smallscale.
Earlimart orache <i>Atriplex erecticaulis</i>	775 acres	544 acres	136 acres (18%)	Species could benefit from protection of grassland habitat.
Subtle orache <i>Atriplex subtilis</i>	2,106 acres	94 acres	24 acres (1%)	Species would receive some benefit from HCP's vernal pool measures and measures and compensation for lesser saltscale and Bakersfield smallscale. Species could also benefit from protection of grassland habitat.
Lost Hills crownscale <i>Atriplex vallicola</i>	3,177 acres	698 acres	175 acres (5%)	Species would receive some benefit from HCP measures and compensation for vernal pools, lesser saltscale, and Bakersfield smallscale.
Hoover's calycadenia (Hoover's rosinweed) <i>Calycadenia hooveri</i>	180 acres	8 acres	2 acres (1%)	
Chaparral harebell <i>Campanula exigua</i>	163 acres	14 acres	3 acres (2%)	
Lemmon's jewelflower <i>Caulanthus coulteri</i> var. <i>lemmonii</i>	844 acres	147 acres	37 acres (4%)	Species would receive some benefit from HCP measures and compensation for California jewelflower. Species could also benefit from protection of grassland habitat.
Beaked clarkia <i>Clarkia rostrata</i>	659 acres	93 acres	23 acres (4%)	Species would receive some benefit from HCP measures and compensation for other <i>Clarkia</i> species.
Mariposa cryptantha <i>Cryptantha mariposae</i>	715 acres	204 acres	51 acres (7%)	
Kern County larkspur <i>Delphinium purpusii</i>	145 acres	74 acres	18 acres (13%)	
Recurved larkspur <i>Delphinium recurvatum</i>	4,052 acres	878 acres	219 acres (5%)	
Round-leaved filaree <i>Erodium macrophyllum</i>	1,341 acres	252 acres	63 acres (5%)	
Shevock's hairy golden-aster <i>Heterotheca shevockii</i>	25 acres	15 acres	4 acres (15%)	

Species	Potentially Occupied Habitat in Action Area	Potentially Occupied Habitat within 200 m of PG&E Infrastructure	Maximum Estimated Disturbance Over Permit Term	Potential Benefits from New HCP Measures
Rose-mallow (California hibiscus) <i>Hibiscus lasiocarpus</i>	1,718 acres	801 acres	200 acres (12%)	
Parry's horkelia <i>Horkelia parryi</i>	59 acres	4 acres	1 acre (2%)	
Munz's iris <i>Iris munzii</i>	294 acres	86 acres	22 acres (7%)	
Munz's tidy-tips <i>Layia munzii</i>	347 acres	158 acres	40 acres (11%)	
Madera leptosiphon <i>Leptosiphon serrulatus</i>	116 acres	110 acres	27 acres (24%)	
Delta mudwort <i>Limosella subulata</i>	164 acres	75 acres	19 acres (12%)	
Orange lupine <i>Lupinus citrinus</i> var. <i>citrinus</i>	130 acres	44 acres	11 acres (8%)	
Shaggyhair lupine <i>Lupinus spectabilis</i>	376 acres	61 acres	15 acres (4%)	
Indian Valley bush mallow <i>Malacothamnus aboriginum</i>	41 acres	21 acres	5 acres (13%)	
Slender-stemmed monkeyflower <i>Mimulus filicaulis</i>	12 acres	5 acres	1 acre (11%)	
Slender-stalked monkeyflower <i>Mimulus gracilipes</i>	60 acres	40 acres	10 acres (17%)	
Aromatic canyon gooseberry <i>Ribes menziesii</i> var. <i>ixoderme</i>	177 acres	66 acres	17 acres (9%)	
Marsh skullcap <i>Scutellaria galericulata</i>	5 acres	4 acres	1 acre (21%)	
Rayless ragwort <i>Senecio aphanactis</i>	21,088	2,637 acres	659 acres (3%)	
Wright's trichocoronis <i>Trichocoronis wrightii</i> var. <i>wrightii</i>	4 acres	1 acre	0.3 acre (8%)	

Lemmon's jewelflower (which would receive some benefit from HCP measures and compensation for California jewelflower, and possibly also from protection of grassland habitat); beaked clarkia (which would receive some benefit from HCP measures and compensation for other *Clarkia* species); Parry's horkelia; shaggyhair lupine; and rayless ragwort.

Maximum disturbance could be slightly greater (5–10% of action area's potentially occupied habitat) for another eight of the species listed in Table 5-7: heartscale (which would benefit from HCP measures and compensation for other *Atriplex* species); Mariposa cryptantha; recurved larkspur; round-leaved filaree; rose-mallow; shaggyhair lupine; rayless ragwort; and Wright's trichocoronis.

An additional eight species could experience a higher level of disturbance (10–24%): Earlimart orache (which would also benefit from protection of grassland habitat); rose-mallow; Munz's tidy-tips; Madera leptosiphon; Delta mudwort; slender-stemmed monkeyflower; slender-stalked monkeyflower; and marsh skullcap (which would benefit from HCP wetland measures as well as federal and state regulations protecting wetlands).

However, for all of the species listed in Table 5-7, impacts would be substantially addressed by requirements of PG&E's existing biological resources program, which will carry forward for the activities enabled under the proposed action. In addition, as summarized above and in Table 5-7, a number of these species would benefit from HCP measures for the protection of covered species with similar habitat requirements. Consequently, in light of the small area of impact anticipated, the continuing protection afforded by PG&E's existing biological resources program, and the additional benefits to some noncovered species through the proposed HCP, **population-level impacts of O&M activities enabled under the proposed action are expected to be less than significant.**

New minor construction enabled under the proposed action would result in small permanent losses of habitat (estimated at an averaged maximum of 1 acre per year over the 30-year permit term). It is difficult to predict precise per-species losses of habitat for noncovered special-status plants as a result of new minor construction, because the number, location, and size of new facilities that would be constructed cannot be identified with certainty at this time, although most are likely to be located in proximity to existing PG&E infrastructure and/or to existing or new development. However, the loss of habitat—*in toto* and for any given species—would be small overall. Moreover, as identified above, PG&E will carry its existing biological resources program forward under the proposed action. As part of this program, as discussed in Chapter 2, PG&E's biologists or environmental specialists review new minor construction activities (unless they are covered under the developer's environmental documents) to evaluate their potential to disturb sensitive or protected habitats, such as wetlands, waterways, and the habitat of sensitive species, where a need is identified. Biological review includes searches of the CNDDDB and review of other company files (where they exist) for relevant information from past biological survey results and reports; if necessary, the company's biologists also conduct pre-activity biological surveys. This enables identification of any additional species- or site-specific avoidance or protective measures that may be appropriate, in addition to the company's

universal biological resources BMPs. In light of the small area of habitat loss anticipated, and the protection afforded by PG&E's existing biological resources program, which would carry forward under the proposed action, **minor construction is not expected to result in significant population-level impacts on the species listed in Table 5-7.**

In summary, impacts on noncovered special-status plants as a result of O&M and minor construction activities enabled under the proposed action are expected to be less than significant.

Mitigation Measure—No mitigation is required.

Impact BIO6—Potential effects on noncovered special-status wildlife species and their habitat. O&M and minor construction have some potential to result in injury, mortality, and/or loss of habitat to special-status species other than those covered by the HCP. Note that these species, listed in Table 5-4, were excluded from HCP coverage because HCP species screening suggested that significant impacts were unlikely, or because they are not at present federally or state-listed, and are not expected to become listed during the 30-year permit term. Based on their distribution and the nature of the activities that would take place, the lead agencies have also concluded that significant impacts are unlikely. The following paragraphs explain this conclusion in greater detail.

Four species, the Merced Canyon shoulderband, Ciervo aegialian scarab, Dry Creek cliff strider bug, and Merced kangaroo rat have very narrow known home ranges. As discussed in Chapter 2 and the preceding impact analyses, PG&E's current practice is to avoid small, localized populations of special-status species where they are known to occur through past biological surveys, "white literature," species experts' input, and/or CNDDDB records. Where biological screening indicates that it is warranted, species experts are consulted to assist the company's in-house biological staff in areas where species- or site-specific avoidance measures are necessary. In addition, PG&E's O&M activities are implemented in a manner to avoid or minimize effects on small, localized populations where this can be accomplished while continuing to meet CPUC's safety and other regulations; if O&M activities are required in an area used by any of these species in the future, company biologists would evaluate the potential for impact and identify appropriate site- and activity-specific avoidance or minimization measures. In light of these provisions, impacts on the four highly localized species (Merced Canyon shoulderband, Ciervo aegialian scarab, Dry Creek cliff strider bug, and Merced kangaroo rat) as a result of O&M and minor construction are expected to be **less than significant.**

Nine species—foothill yellow-legged frog, silvery legless lizard, two-striped garter snake, snowy egret (rookeries), great blue heron (rookeries), yellow rail, western snowy plover, LeConte's thrasher, and gray vireo—are known to occupy a small portion of the action area and have a broader distribution outside the action area. All nine of these species would be substantially protected during both new minor construction and ongoing O&M by PG&E's biological resources program, described under *PG&E's Existing Environmental Programs and Practices* in Chapter 2; impacts on birds would also be reduced by measures

included in the company's Bird Protection Program (see HCP Appendix E). Additional protection would be afforded by the HCP's AMMs for species with similar habitat requirements. For example, foothill yellow-legged frog would benefit from AMM 17 (general protection for amphibian and reptile habitat) and possibly also from AMM 16 (protection for giant garter snake and California red-legged frog; two-striped garter snake would benefit from AMM 16, yellow rail would likely benefit to some extent from measures protecting wetland and grassland habitats; and the great blue heron and snowy egret would derive some benefit from protection of riparian habitat under AMM 26 (for riparian brush rabbit) and AMM 27 (for riparian woodrat). Impacts on heron and egret rookeries would be further minimized by PG&E's continuing compliance with protections for nesting birds embodied in Section 3503 of the California Fish and Game Code. In light of these PG&E's existing biological resources program and Bird Protection Program, measures included in the proposed HCP, and continued compliance with Section 3503 of the Fish and Game Code, the potential for significant impacts on all nine of these species is evaluated as **less than significant**.

The remaining 18 species listed in Table 5-4 have wide distributions that encompass much or all of the action area and in many cases extend outside the action area as well. These species include California linderiella, Hopping's blister beetle, Moestan blister beetle, Molestan blister beetle, Morrison's blister beetle, western spadefoot, western pond turtle, California horned lizard, San Joaquin whipsnake, northern harrier, Cooper's hawk, long-eared owl, California horned lark, pale Townsend's big-eared bat, San Joaquin pocket mouse, short-nosed kangaroo rat, Tulare grasshopper mouse, and American badger. Impacts of O&M activities on these species' habitat would be localized and temporary; minor construction, although it would result in permanent effects, would be even more areally restricted. Population-level impacts on any of these species are unlikely in light of the small area of habitat affected annually and over the permit term. With the existing biological resources program continuing in force under the proposed action, impacts would be effectively addressed on an activity by activity basis. Some species would also benefit by implementation of the HCP's AMMs for covered species with similar habitat requirements. For instance, linderiella would be protected by AMM 15 (vernal pool protection); western spadefoot and western pond turtle would benefit from protection of wetland and riparian habitat under AMMs 6 and 7, from protection of covered amphibian and reptile habitat under AMM 17, and from protection of California red-legged frog and giant garter snake habitat under AMM 16; and northern harrier, San Joaquin pocket mouse, short-nosed kangaroo rat, Tulare grasshopper mouse, and probably also American badger would benefit from grassland protection and compensation. Consequently, impacts on these 18 species are also expected to be **less than significant**.

In summary, the potential for adverse effects on the noncovered special-status wildlife species listed in Table 5-4 is evaluated as less than significant.

Mitigation Measure—No mitigation is required.

Impact BIO7—Potential effects on aquatic habitat as a result of inchannel work. As discussed in Impact WR6 (see Chapter 8, *Water Resources*), both the O&M and minor construction programs enabled by the proposed action would require “wet crossings” where infrastructure traverses an active stream channel or other body of water. As many as 5 to 15 crossings could be required each year, with each crossing temporarily affecting an area of 0.10 to 0.50 acre. In some cases, it may be necessary to place fill, recontour, or otherwise modify the banks or bed of the affected water body; inchannel construction thus has the potential to temporarily or permanently reduce habitat values by altering the geomorphology, hydraulics, and/or shallow limnology of streams and lakes. It can also degrade water quality by remobilizing sediment from the channel bed and banks. Leaks or spills of fuel, lubricants, paving media, or other substances used in construction have additional potential to degrade water quality and reduce aquatic habitat values. If such effects were to occur, they could be significant.

As discussed in Chapter 2, PG&E will continue to implement the company’s existing programs and practices for water quality protection for all activities enabled under the proposed action. In addition, as required by Section 1602 of the California Fish and Game Code, which regulates inchannel work, the proposed action would entail development of a master streambed alteration agreement between PG&E and DFG, which would include further commitments and measures to provide additional protection of water quality during inchannel work. Moreover, placement of fill or dredged material below the ordinary high water mark of any stream or wetland would require PG&E either to obtain an individual permit from the USACE under Section 404 of the federal Clean Water Act, or to qualify for an existing Section 404 Nationwide Permit. Compliance with CWA Section 404 could involve a further review of water quality issues.

With this state and federal regulatory protection in place, continuing implementation of the BMPs discussed in Chapter 2, and new protection afforded by the Master Streambed Alteration Agreement, impacts on habitat values for fish and wildlife as a result of inchannel work are expected to be less than significant.

Mitigation Measure—No mitigation is required.

Impact BIO8—Potential disturbance or loss of common wildlife species and their habitats. O&M and minor construction have some potential to result in injury, mortality, and/or loss of habitat to common wildlife species. Those most likely to be impacted are ground-dwelling mammals that occupy underground burrows, such as rodents and rabbits. The burrows of fossorial (digging) mammals provide important refuge and/or breeding habitat for special-status species such as California tiger salamander, western spadefoot, California red-legged frog, western burrowing owl, and San Joaquin kit fox. Rodents and rabbits also provide a significant source of food for special-status species such as Swainson’s hawk, white-tailed kite, American badger, and San Joaquin kit fox. Thus, significant losses of common wildlife such as rodents and rabbits could indirectly impact populations of special-status species if their decline resulted in a substantial loss of suitable burrows or reduced their availability as a food source.

Because impacts from individual O&M and minor construction activities would be localized, and work sites would be distributed across a large geographic area, substantial losses of common wildlife species over large areas are not expected to occur, and any populations impacted by localized losses of individuals would likely recover. Because these losses are not expected to be substantial, the corresponding impact on special-status species that rely on these common species is likely to be small. Further protection would be provided by implementing the HCP's AMMs for special-status species. For example, several of the AMMs include avoiding burrows that may be occupied by special-status wildlife species. The proposed HCP's general AMMs (AMM 1 through AMM 10) would also avoid or minimize some impacts on common species such as rodents and rabbits. For instance, AMM 3 would minimize disturbance and loss of habitat by limiting the development of new access roads and blading for temporary vehicle access. AMMs 2 and 4 could minimize mortality of rodents and rabbits by restricting vehicles and equipment to previously disturbed areas to the extent practicable and limiting vehicle speeds to 15 mph in ROWs and unpaved roads. **With these measures in place, impacts on common species are expected to be less than significant.**

Mitigation Measure—No mitigation is required.

Impact BIO9—Potential to spread invasive nonnative plant species. O&M and minor construction have some potential to introduce and/or spread invasive species in the action area. For instance, nonnative seeds can be carried into a work area on the tires or tracks of equipment. In addition, some invasive species are disturbance-adapted and may be more successful than competing native species in disturbed work areas. As described in Chapter 2, PG&E's existing biological resources program includes weed control measures such as requiring appropriate footwear, ensuring that seeds are removed from clothing, and inspecting and cleaning vehicles, all of which help to minimize the spread of seeds. The proposed HCP will further require that seed mixtures and straw used for erosion control in sensitive habitats must be certified weed-free (AMM 10); see Table 2-9). With PG&E's existing and new weed control measures in place, **impacts related to the spread of nonnative plant species under the proposed action are expected to be less than significant.**

Mitigation Measure—No mitigation is required.

Alternative 1—HCP with Reduced Take

Alternative 1 would enable the same program of O&M and minor construction activities analyzed for the proposed action; differences between Alternative 1 and the proposed action center on mechanisms for avoiding take. Specifically, Alternative 1 focuses on increased avoidance of take, and would require much more comprehensive and stringent implementation of the HCP's AMM program, which would benefit both covered and noncovered special-status species, and would likely also provide corollary benefits for common species. Impacts on special-status species (covered and noncovered), identified as less than significant for the proposed action, are expected to be further reduced under

Alternative 1. Impacts on common species, also expected to be less than significant under the proposed action, would likely also be somewhat reduced under Alternative 1.

Alternative 2—HCP with Enhanced Compensation

Like Alternative 1, Alternative 2 would enable the same program of O&M and minor construction activities analyzed for the proposed action. Alternative 2 would also implement the same AMMs; however, because Alternative 2 stresses increased compensation for unavoidable habitat losses, habitat compensation requirements would be substantially increased under Alternative 2. As a result, impacts on biological resources would be essentially the same under Alternative 2 as those described for the proposed action, but temporary and permanent habitat losses would be compensated at a higher ratio, so a greater acreage of compensation lands (with corollary benefits for covered, noncovered, and common species) would accrue under Alternative 2.

Alternative 3—HCP with Reduced Number of Covered Species

Alternative 3 would enable the same program of O&M and minor construction activities analyzed for the proposed action and the other action alternatives. The key difference between Alternative 3 and the proposed action is that a smaller number of species would be covered under the Alternative 3 HCP; AMMs and habitat compensation would otherwise be essentially the same as those described for the proposed action. Because the Alternative 3 HCP would protect fewer special-status species, it would provide less corollary protection for noncovered special-status species and common species, and would likely require less habitat compensation over the long term. Impacts on biological resources could thus be somewhat greater under Alternative 3 than under the proposed action.

Alternative 4—No Action

Under the No Action Alternative, PG&E would continue O&M and minor construction activities for its San Joaquin Valley natural gas and electricity facilities without implementing a program-wide HCP. Instead, potential take of threatened and endangered species would continue to be addressed on a case-by-case basis, pursuant to the requirements of ESA Section 7 and Section 2081 of the California Fish and Game Code. Through this consultation process, PG&E would address impacts on most of the species included in the proposed HCP, and measures implemented to avoid, minimize, and mitigate impacts on special-status species would probably also help to reduce or avoid impacts on common species, as identified for the proposed action. However, the HCP covers a number of species that qualify for some form of California special status but are not

federally listed, thus providing more comprehensive assurance of consultation and mitigation than case-by-case consultation is likely to offer.

The general types of impacts on natural vegetation, special-status species, and common species expected under the No Action Alternative would be very similar to those identified above for the proposed action. The key differences are (1) no new AMMs would be implemented to buffer potential impacts, so impacts are more likely to be significant; and (2) potential take would be dealt with on a case-by-case basis rather than through a coordinated conservation program. Consequently, conservation efforts under the No Action Alternative would be less integrated; in particular, the purchase of conservation lands would probably be more fragmented. While case-by-case mitigation might be effective at targeting and preserving localized high-value habitat, the creation of a large number of smaller mitigation sites could result in less effective species conservation across the action area as a whole. Conservation lands would be less likely to offer preferred conditions such as larger contiguous areas of habitat or connectivity with other open space or conservation areas. This would be of particular concern for species such as the San Joaquin kit fox that require large areas of habitat or corridors allowing them to travel between areas of suitable habitat. The absence of a comprehensive monitoring and adaptive management program would also reduce opportunities to ensure the success of mitigation sites.

In summary, because the No Action Alternative would approach conservation on a case-by-case basis, it would not offer the advantages of integrated regional conservation planning provided by the action alternatives, and would provide less comprehensive assurance of mitigation for impacts. Outcomes for all categories of habitats and wildlife are more likely to be adverse/significant under the No Action Alternative.

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